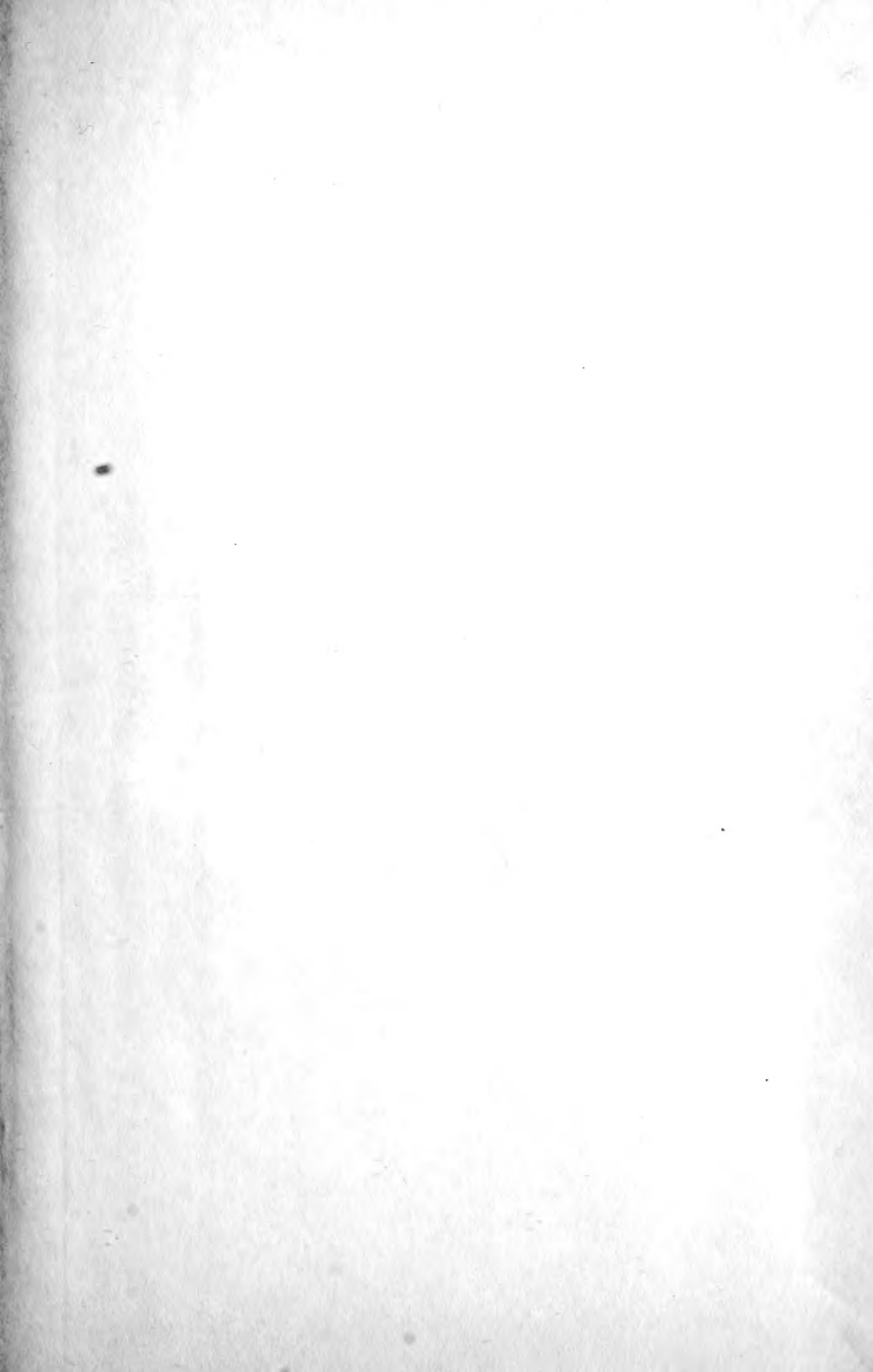


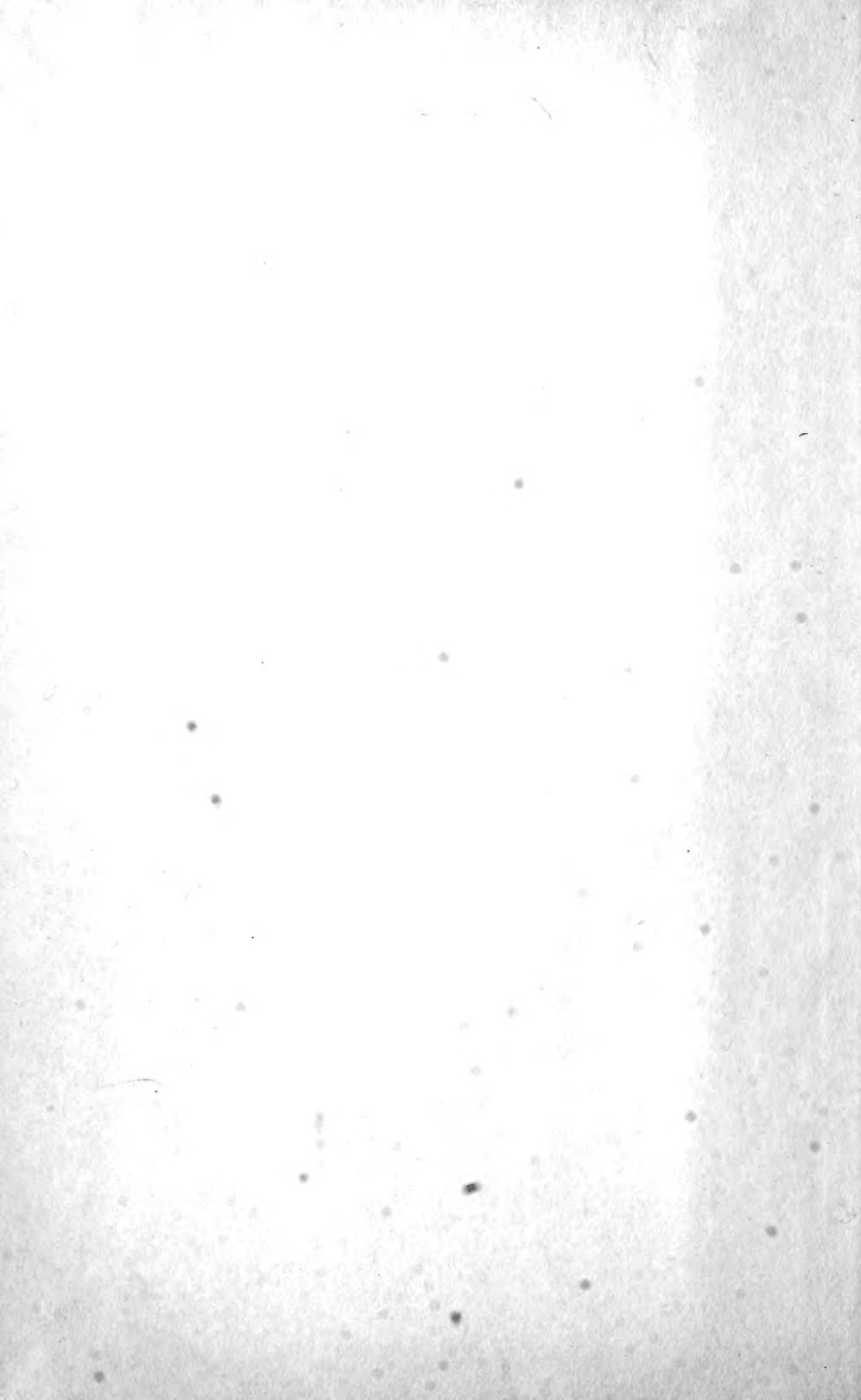
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BUZZACOTTS MASTERPIECE

OR

THE COMPLETE HUNTERS' TRAPPERS
AND CAMPERS' LIBRARY OF
VALUABLE INFORMATION

BY "BUZZACOTT"

Francis Henry Buzzacott

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To the EXPLORERS, HUNTERS and TRAPPERS

Those hardy and fearless pioneers of civilization, who have passed on and on through the wilderness, over plain and forest, opening and spreading civilization, establishing new enterprizes; creating as a result a mighty empire of freedom, patriotism and christianity; enabling us to enjoy the choicest gifts of this God's country and nature's paradise, and to the army of American sportsmen who are thus permitted to enjoy sport, such as no other country equals, without wantonly destroying what they can not use, merely to satisfy a killing mania, and to those who will upon reflection, *act and aid* in the preservation and propagation of life in our forests and streams, this book is respectfully dedicated by the author.

"Duggacott"



An Ideal Camping Spot.

FRANKLIN CO. CHICAGO



A WORD IN ADVANCE

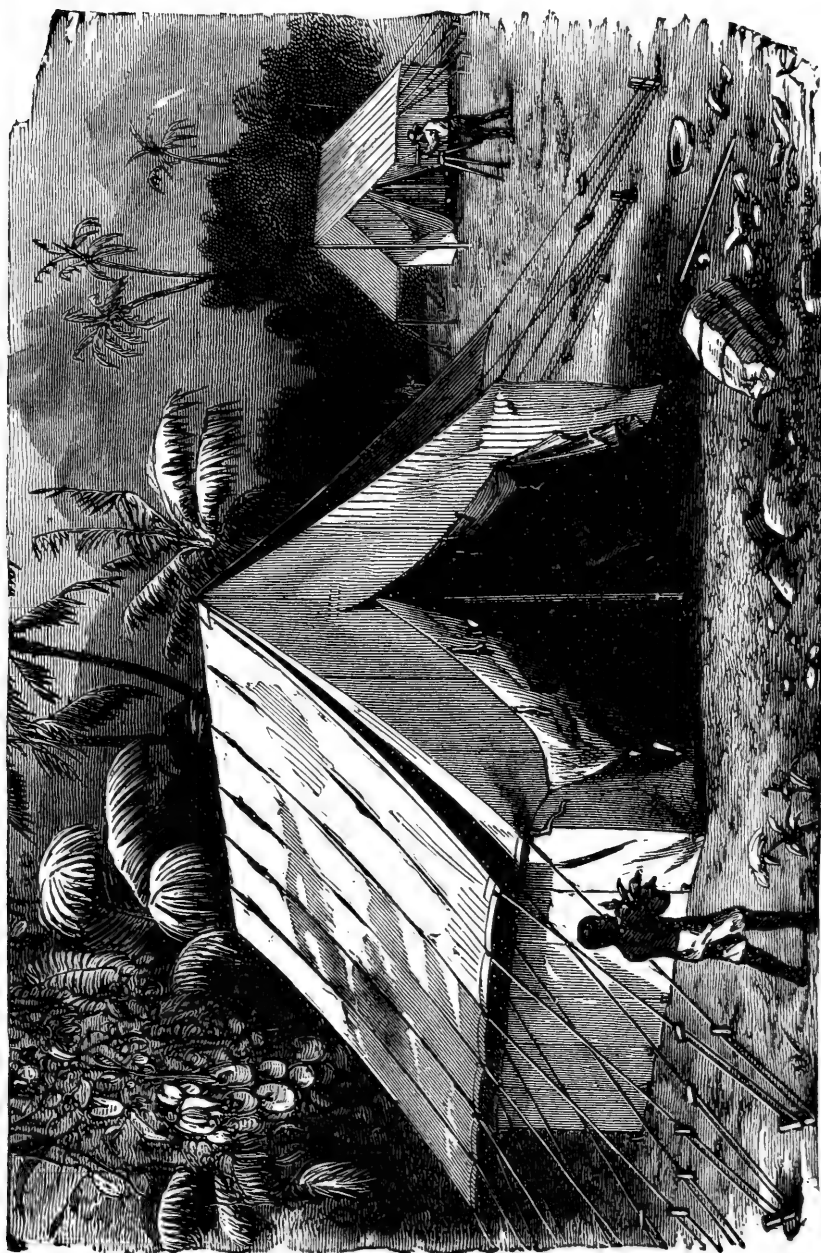
In submitting this, my second volume, to the nature loving public, I wish to thank my many readers for the very generous way they received my previous work. It is largely due to this encouragement that I have labored, in this volume, to further gain your approval, and deserve or merit your patronage and support.

The large circulation of my first book also shows clearly that facts minus sentiment, and truth without fiction, is as interesting as the general plan of mixing both, for this is an age when readers on such subjects seem to desire to avoid sentiment, and get down to bare facts instead, preferring the "meat" of the nut only rather than the "shell" and all.

In these pages it is not my intention to attempt to idealize wild animal life, or ascribe to them powers of reasoning, or perceptive intelligence akin to the human. Far from it.

But it is my aim and desire to credit them with all the intelligence that is due to wild animal life, in all the name implies, and to herein treat upon subjects which is the result of forty years' experience and observation amongst wild animals as a hunter, trapper, guide and explorer.

In this work I have aimed to treat on subjects hitherto untouched, except in a scientific way, and while I am fully



The All-Around Wall Tent and Fly (two views).

aware that of the countless volumes that have been written on the subject by masters of the pen, there is still room in the field for one at least from the hands of one of the rank and file.

I am also aware that in this volume I upset many pet theories of many writers on these subjects, and strange though some of my statements may appear to be, I desire the reader to remember that there is a generation almost of experience and observation back of them all.

In my citation of the Scriptures, I also ask the reader to overlook any digression from subjects which may appear to be at first "foreign" to the matter, and as you go along the reason why will be made plainer to you later on.

I would also invite attention to the fact that it is wrong in my estimation to judge of the intelligence of wild animal life by comparisons made from those animals who are in captivity, because they are subject to unnatural and unexpected impulses, brought about by the strain of confinement, which prompts them to become changed and prone to the extremes of disposition. This also applies to animals born or raised in captivity, for, as a rule, these are neither physically or mentally perfect, and, despite appearance, are ill-natured and undeveloped, and liable to flighty, changeable moods—nervous, fearful, mean and selfish, and with few exceptions, differ entirely from those creatures of the wild woods and forest, who are free to exercise all their natural powers, mental, physical and otherwise. These are dependent on their resources, free from all restraints and far superior in intelligences to those which in confinement are embittered and enthralled.

Furthermore, I ask the reader to commence perusing this volume, not in part, but as a whole, from the first to the last page, for if this is not done you will fail to observe or see the connecting parts, so essential to an understanding of its peculiar scope or depth of the whole.

In conclusion I can only say that the writer lays no claim to naturalistic or scientific tendencies, has never even received a complete common school education, but for forty years has lived a life laid down in these chapters, and by experience and enthusiasm for my subjects have compiled this volume.

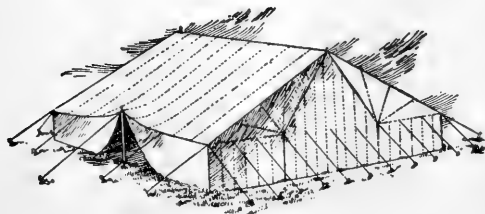
To me it has been a life labor of love and hard work. I have written as I would speak to you, and try to put my personality and individuality in every page; no one has edited, corrected, added to or deducted from a single line or chapter, for I feel that to depart from this rule would be to lose the individuality or personality I desire you to be the judge of.

As mentioned before, this is my second volume; the first, the "Sportmen's Guide," received such a welcome at your hands that I have been encouraged to still greater exertions in my endeavors to serve and interest you further with a still larger array of facts intended to instruct rather than to entertain as before.

Faithfully and fraternally yours,

(The Colonel) FRANCIS H. BUZZACOTT,
Chicago, Ill., 1913.

Member of: British South African Expedition, 1878-9;
Antarctic Expedition, 1879-81; Voyage to the Arctic,
1881-4; Service of the U. S. Government, 1885-93;
Spanish-American War Campaign, 1898; Wellman-Polar
Expedition, 1906; National Rifle Association; League
of American Sportsmen; American and Canadian
Sportsmen Association; American Geographical So-
ciety; National Geographical Association; Association
for the Advancement of Science; American Institute
of Scientific Research.



AUTHOR'S INTRODUCTION

Take the map of America today, place your finger on any part of it—North, South, East or West—trace out Polar Ocean, Hudson Bay or Alaskan regions, westward to the Rockies, eastward to the Great Lakes, south to the Gulf of Mexico, Central or South America, the Tropics, over clear to Cape Horn, if you will, back to the Arctic ice fields again. Ask who was the first men to “blaze a trail,” “tote a pack” into its forest or wilderness, cross morass, marsh or swamp, force or shoot the treacherous rapid, portage its winding waterways, pass over mountain chains, chasm, foothills, plains, arid desert, barren or timber, and you’ll find that in the history of American progress, side by side, hand in hand with pioneer craftsmen, **the trapper has done his part**; comes in for his equal share of honor or fame.

When others pushed on beyond he alone penetrated the remaining untraveled regions, faced unknown dangers and “blazed a trail” that others or civilization could follow after. The thud of his axe or dead fall, the swish of the snare, the dripping gleam of the paddle, the click or snap of the trap, the flash of the flint-musket or its echo told the story of progress of his lone and lonesome tasks, while gleaming knife thrust, fur piles, scalp belt and a few bleached bones later told their silent tale of **hunter and trapper being hunted and trapped in turn**. Mattered it not if a trail ended there, others followed that way and pushed onward in advance of a mighty empire, which later followed in their wake. Unknown dangers were bravely faced, as was bitter frost, numbing cold, hunger, thirst or starvation even, **a fortune lost or won**, or loved ones sacrificed deterred not his irresistible progress onward; scant success, misery, dismal failure even was **part of the game to be played, and he won and lost in turn**. The yelp of the fox, the wail of the jackal or coyote, the scream of the panther, wolverine, the snarl of the wolf, the shriek of pain or the yell of triumph was all the sounds he heard—**trapper’s music then, as now**. Such was the men and days of the past, **and those who seek to be trappers to-day** must in a measure, at least, emulate their ways, and, profiting by the experience of others, **learn even to avoid their failures**—yet achieve their successes. Life is too short

for universal personal experiment; the successful man of today is the one who profits by the experience of others—reaps a harvest or reward.

No man is a born woodsman or trapper. The choice of either following calls for men with red blood in their veins—men able to smile in the face of repeated failure, for mortifying failures will creep in no matter **how old or experienced one is at the game.** Now the question hinges on turning failure into success—trying over and over again, if needs be, with renewed interest; scheming, planning new methods to suit today's conditions **as you find them;** adapting oneself to conditions and circumstances which are **ever varying and seldom the same,** taking into account all the little vexations and irregularities which creep into the game, and with stubborn persistency striving to overcome them—trying to do better, and with keen eyes, tireless feet, unflagging zeal, putting heart and mind into the work and realizing that no matter how experienced one may be **there is always something more to learn.**

There are so many movements in the **checker-board life of a trapper** that it is impossible to make any one system to cover the field. Animals are governed largely by the caprice of the moment; so should the trapper ever **adapt himself to conditions as he finds them,** which are seldom, if ever, the same, and by energetic practice and perseverance meet move with move, accepting and expecting defeat, discouragement, losses, failures, yet playing the game to win. Do this and failures will assure successes, for as in all other things **so is it in the trapper's field.** One eventually must win, that is if he puts his heart in the work, and first, last and all the time adds to his storehouse of knowledge **as to wild animals' ways** and how to circumvent them.



“STARTING OUT”

To be a successful trapper or hunter depends neither on the elaborateness of one's outfit, kit, size of the tote pack, ability to juggle the irons or shoot so very straight. Indeed, in these days, we must learn not from the catalogue standpoint, but by profiting from the old and time-tried experience of those who have graduated before us in the knack of it all.

We have books and stories galore of the personal experience and reminiscences of the craft; hence, it shall not be my purpose to, in this volume, interest or entertain my readers on these lines; instead, to compile a work such as will instruct and serve you, one which can be read with profit before you take your trip to the woods, and which can be read with equal advantage after you get there, no matter whether your route lies through the forest or mountainways, along the blazed trail, beaten path, plain, desert or along the rippling waterways. Or if you are of the tribe who seek a livelihood thus, or one who, for a well-earned recreation, simply take to the tall timbers but once in a while.

Indeed, it shall be the purpose of this volume to aid the reader by studying more the habits and peculiarities of the game and haunts we seek, believing that were the trapper or hunter of today to put more of such thought and care to his store-house of knowledge success would come much easier in many ways. Indeed, there is quite as much necessity of information on these lines as there is in the way of correct, right and light outfitting for such a trip.

It is such things as these that has contributed much toward the success of most of our noted frontiersmen, trappers, hunters, scouts, guides, etc., be they Indian, native or white men, when out on their trips. All of them have profited by a thorough knowledge of the habits and peculiarities of the game they seek, its location and the regions they traverse. With them these essentials are the all-important, first, last—all the time, in fact; then why not with us, too? The whole trouble is, we pay too much attention to our outfit or kit and rely too much altogether on our shooting irons. It would be much better to put more of this time into studying the ways of the animals instead. For is it not essential? As it is, we are really handicapped

by ourselves, going into the woods or haunts of the game with too little knowledge of **what to really do after we get there.**

These are the essentials to real success. Nine times out of ten one can attribute failure to the dire lack of knowledge of these things.

There is plenty of game of all kinds, and killing it is the easiest task. The hard part of it is to know how, where, when to locate it, and one cannot do this unless they make a particular and thorough study of how to go about it correctly; much as did those famous guides who have gone before us, except perhaps that we, ourselves, must modify their ways so as to suit our today's conditions and needs.

True, we first took our lessons in all these things from the Indian, past master of the art as he was then; but not today, because the white men have profited by and improved on his methods, even to putting into his hands the superior weapons and knowledge how to reach and kill game. We have gone ahead of him by leaps and bounds until, poor Lo, his skill and knowledge is almost a thing of the past. Years ago we marveled and wondered at his supremacy in the way of woodcraft, art of trailing and a hundred other things, but time has changed; we have advanced while the Indian has not, until he is nothing more than history, almost. No Indian ever lived could equal the all-around abilities or exploits of such Americans as Carson, Boone, Crockett, Bridger, Lewis, Clark, Houston and a hundred more that I could mention in days gone by, and even today there are many white men who can teach the Indian much that he never knew about even his own trade, woodcraft, or the art of living off the resources of the country that at one time was his own. Today the white man, trapper and hunter both, will exist where the Indian cannot, and even he himself acknowledges his short-comings and the supremacy of the white man's ways.

Unfortunately, however, the new beginner, trapper, hunter, etc., makes the serious mistake of not emulating the achievements or knowledge given out by these famous men, and are ourselves to blame for much that contributes to our failure in the hunt and our knowledge of woodcraft, and by pen and picture, both, I intend to try to show you plainly how, why and where we are at fault in many things at least.

RIGHT AND WRONG EQUIPMENT

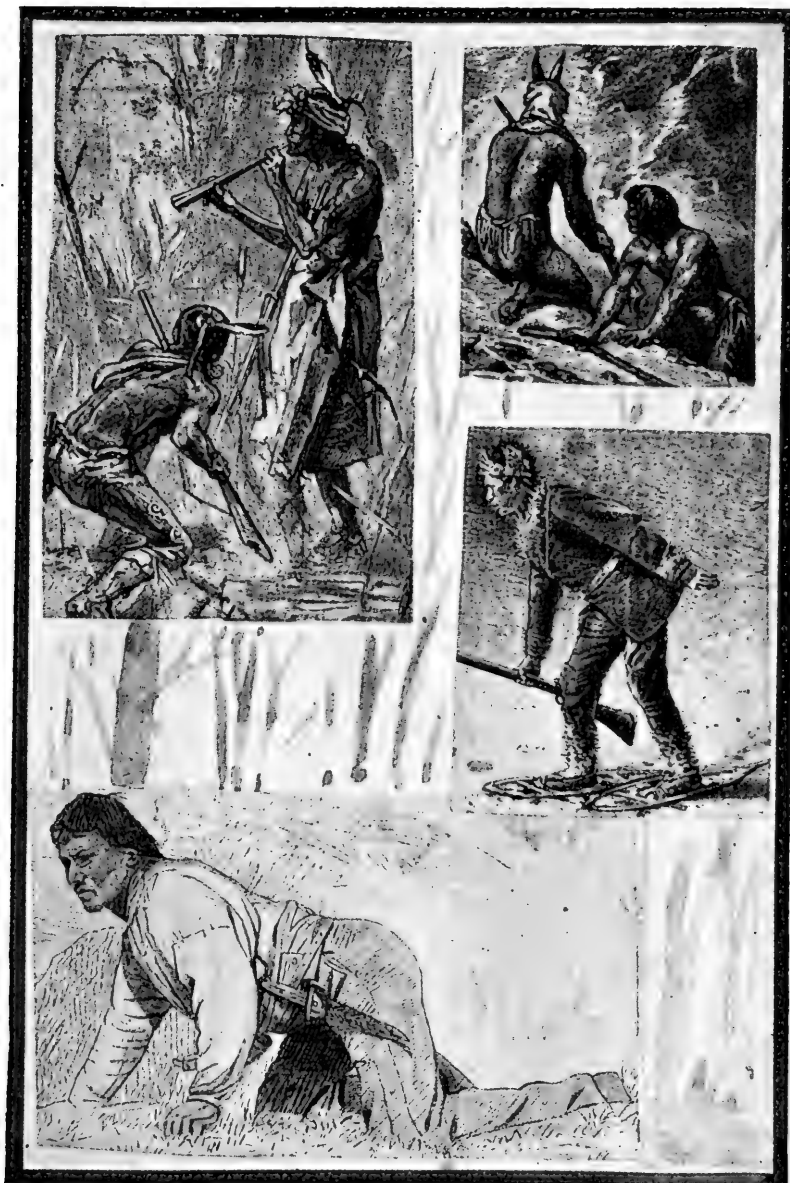
First of all, let us take the average hunter's garb—the dress or clothing today. Could anything be more inappropriate than the very rig which fashion has decreed the hunter or sportsman should wear? Here we have gone too far ahead for our own good, so much so that it greatly lessens our chances for success, and adds no little to our failure. From stem to stern, as the sailor says, or from the tip of our head to the soles of our feet, are we ill-fitted and incumbered with both clothing and equipment for the woods or the chase.

I will go even further and say we are ridiculously garbed—so much so that even the hats, caps, clothing or boots such as we wear and use not only retards and hinders our progress, but lessens and diminishes our chances of success to a surprising degree. Indeed, when one really does give due consideration to these facts, all in all, it is enough to make one wonder how in the world some men really do succeed nowadays hunting.

Would it not be more fitting, wiser and better, were we to garb or clothe ourselves appropriate to our surroundings, and liken much to nature when in the wilderness or chase? As it is now, we rig ourselves in both clothing and equipment which, while it may seem all right to us, through our custom and ways of using it, is in itself enough to really scare or frighten the wits out of any bird or animal that crawls, creeps, walks, climbs, swims or observes us. For do we not sacrifice looks, everything, for comfort, while the old experienced hunter sacrifices comfort for success, or at least he leaves his comforts where he can avail himself of them after success is assured.

It is the experienced hunter who strips for the chase, who divests himself and person to every inappropriate garment or item inessential to the trip, no matter be he in the Arctic regions, the tropics, the sunrise or the sunset country, it is the same; he travels right, light and in exact accordance with his requirements, season of the year, location, etc., first, last, all the time considering the conditions necessary to pursuit of the game he is after and the regions he traverses. On the other hand, the new beginner garbs himself fero-

EXPERT HUNTERS AND THEIR WAYS.



"There's a Reason to It All."

ciously almost, and adds to it equipment galore that is in itself freakish and a burden in lots of ways.

Instead of a close-fitting hunting shirt or tunic, such as takes on the natural color of the woods or surroundings, he usually garbs himself in various colors and styles, canvas, corduroy or cloth garments, that are positively discernible and alike to nothing about him, so much so that he is a movable, conspicuous, strange thing of life, that can be almost instantly seen with somewhat scarecrow effect by any critter that happens his way, or who gets within scent, eye or ear-shot of him. Instead of a light, close-fitting head dress appropriate for the woods, he jabs on his head perhaps a wide-brimmed felt hat of a color and shape that not only enlarges his already big head, but which resembles nothing in the world like any one thing to be found in the woods. His outer garments show no more forethought, as they are often made of a cloth or material that has yards of excess stuff and ounces of weight that is superfluous and which rasps, invites or betrays the scratch of every bush or scrubble he comes in contact with, instead of being close-fitting or noiselesslike, not to mention its decided off color. His feet and ankles from the knee down is usually incased with a leather boot or heavy covering that is about five times as thick as needs be, and which alone betrays his nearness, strangeness and ponderous weight wherever he goes, in every step he takes. Indeed, he is neither silently or sensibly shod, nor does he seem to give it even passing thought. Around his waist, perhaps, is a belt full of brassy cartridges, or the ever essential gleaming axe or knife, while a huge, shiny buckle almost heliographs his proximity the distance of a rifle shot away. In his hands or on his shoulders he carries well in sight the almost polished blue steel barrelled weapon, with its dark and shiny stock that front or rear of him is to be observed, while perhaps on his shoulder he carries, humped on his back, his pack sack of essentials, jingle full of good things as he believes, but which adds to his already scare-crow, monstrous appearance. In his mouth the pipe, with its tobacco smoke curling and hovering above him; his other hand swings time with his careless gait, and he cares little or nothing for his towering height, breadth or weight, as he strides along at perhaps a lively, five-mile

clip, craning his neck and head so as to see over every nook and cranny he can find in the distance beyond lumbering along like a big moose, and making about as much unconsciouslike racket as a whole family of bears would, trying to be quiet, I will admit, but absolutely at a disadvantage; perhaps, too, he has a guide or companion along, either or both for that matter, contributing in no small way to the breaking of that ever essential silence and stillness in the woods necessary for success.

And now let us observe and follow the ways and teachings of the experienced trapper or hunter as a comparison—the man who makes it a business—trailer guide, Indian if you will, no matter where is his field, north, south, east or west, you will find him the same. To begin with, he is rightly and lightly equipped, silently and smoothly shod, appropriate to the work before him. Matters it not if the snow lies hard and crusty, deep or soft before or behind him, or the leaves, branches or stubble dry or wet, overhead or beneath him. From his knees down the close-fitting soft breeches leg of buck or hairskin is formed animal-like and fitting to the very smooth sole of his comfortable, even homely, yet unpinched moccasin feet. From his waist or shirt down he is clothed in a rough way, too, but with every freedom of limbs; and yet there isn't a superfluous inch or ounce to impede or betray his quietest passage or progress through the thick brush, or over the barren if need be. Even its dirty color harmonizes with his surroundings. His garments may be patched and greasy, too, but even this is better suited for his purpose than new, harsh and stiff. He isn't on dress parade, and his "glad rags," if he possesses any, he wears on his back, while even its old color, faded maybe, likens to his surroundings. You will find, too, he is not adverse to hiding his big head in a bunch of dry grass, weeds, bush tops or a few tail-feathers when creeping up closer to good game haunts, for he knows by experience that it wasn't all vanity, but a whole lot of common sense about the old Indian tricks of disguising their approach toward game thus. He has learned, too, that hair, fur and feathers won't scare when big hats, caps and white strange faces will. He isn't a bit backward either about stuffing his hat or cap out of the way, and Indian-like sneak-

ing or crawling, snake-fashion on his knees a hundred yards or more for the chance to sight game, or twice that distance for a closer, better, surer shot. To him it is pleasure, woodcraft, and he chuckles and is repaid when he chances to seek, deceive or reassure the frightened quarry he seeks, and prides himself on his ability to make good thus.

Neither does he load himself down with a belt full of ammunition and fixing, or carry a tote-sack about with him habitually. If he does, you will find it both "jingle and fool proof," and most likely hidden somewhere in the woods about where he can lay his hands on it when needed. He has learned, too, the natural noises or wood talk, and loves to imitate the cries of the animals, or the forest sounds, as he strives to conceal his own noises. He studies the ways of the critters he is after, and seeks its meat or pelts in a business-like way—gets it and sport besides; not the hide-and-seek work and play we indulge in, and honestly he gets through life for a week in the woods with less truck and fixings than lots of individuals who call themselves hunters take on any single day's trip.

Think it over, and at best we won't have to theorize much as to the reason of it all.

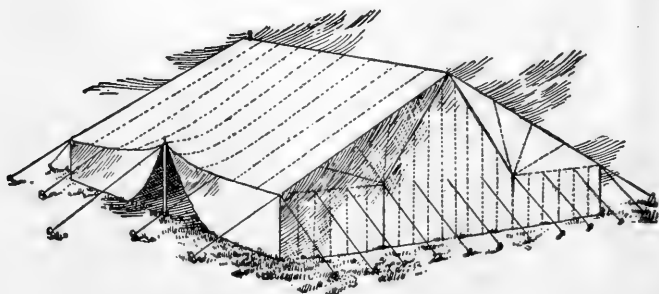
Not only this, but as master of woodcraft, he stands second to none, for like the Indian he, too, studied the ways of the woods and life therein. To him this was his book or catalogue—the birds and animals he is after his subjects, as must you, too, who would follow his ways. He has learned by patience and perception these instead of other things, and realizes the value of silence, mimicry, and pays heed to those things more than to his kit or camp. Should perchance he miss his way or his cache or camp becomes lost, "he isn't," and his fortitude and indifference to such hardship is like his brevity of speech in such cases, surprising at least. For he will then perform his journeys ahead or back, without the aid of geography, compass or astronomy, knowledge, better perhaps than most of us do with all three; if there is such a thing as the "sense of direction," he certainly shows the ear-marks of having it. Yet, back of it all, hard common sense is the secret of even this.

The compass he knows not perhaps, or to him, like many

other hunters, it is but a puzzling doubt. The sunset, sunrise, its opposite directions, his memory and eyes point the way to both his destination and back track, like the lark to its nest, or the bee to its tree.

The clump of brushes, waterways, rocks, hills, barren, valley or the big trees are his guiding landmarks that once looked for and seen he seldom forgets. And if he has never traveled certain routes, or in regions unknown to him, one has but to point the direction correctly, and he will find it, or return to his "cache" or starting point to try it all over again.

If hunting, he is never more happy than when going alone and light, because he is not handicapped by the other fellows or their ways. He eats when he is hungry, and not by clock time, and the fire he builds to cook his food with, or the ashes he leaves, could be covered with the brim of his hat. To him sand-hills, prairie, barren, mountain or wilderness travel is the same. The simple kit his motto—and he is not adverse to building shelter and making himself comfortable when on the trail of game, rather than hiking back to any distance for camp comforts, for he has learned the art of partly gathering his sustenance, foods and medicine from the wilderness, just as did the Indians or their forefathers perhaps before them. For have they not profited by the experiences of others and the lessons which were taught in all these things, **just as you can if you but will.**



THE FIRST LESSONS

And now for the first lessons: It is such men as these that we are indebted to for much of the preliminary knowledge which goes far toward later unfolding to us the many secrets and mysteries of nature and the chase. In our travels amidst the wilderness we soon learn that the owl has silent wings that hardly rustle, and is thus seldom heard, and that he often hoots only, that his ears and eyes may better locate his thus scared or fleeing prey, and that these traits make him the dreaded Ghost of the Woods. We learn, too, that birds even build and maintain decoy nests which they arrange in the open to deceive their enemies, while they hide their own young with almost human intelligence elsewhere. It does not take us long when we study such simple things to find that while nature provides birds with wings, that they must be taught, coaxed and driven to fly, as is the animal to swim, climb or jump, and that the much talked of instinct does not avail them in the ability to even find or catch their food, or hide from the pursuit of their enemies; that even the males of their own as well as other species are constantly seeking to end their existence; that even the mother kills her own offspring that appear deformed or cannot learn correctly, or that becomes thus a burden; that even birds and animals can at times partly conceal or withhold their scent, by which their enemies are deceived or misled; that there are many birds who cannot see straight, and that the cute sideways glances we admire really often mean that they are looking straight at you. And as we go deeper into the study of woods life, we find even the much thought and taught instinctive flights and migrations of birds and animals are mostly but "follow the majority plan"—and that birds and animals flock together at times only for a given and express purpose, all acting under the leadership and instructions of one who assumes and commands obedience by dint of superior knowledge, and upholds his or her rights to the merited position by battle with whomsoever of his host, flock or herd that opposes or challenges his rights to the coveted honor; that they hear, see and speak the silent languages that we can even learn to use, all of

which can be used to further our success in the chase, as we shall later see.

We know, too, of their abilities to communicate their wants, dislikes and fears to each other, and we shall later learn how they signal and use those signs; that they hold these conferences and pass judgment for offenses upon each other, to each other even. Nor have we far to look for proof of all these things. Animal and bird life depend for their existence, much as we do, not upon instinct alone, but by experience, observation and the admirable, diligent teachings of their parent species and kinds, of which we have every proof, and by the fact that left to their own resources the young bird, fish or animal, is the first to fall a victim to its enemies; that certain of them prey on each other, much as did the human savage race in days gone by, for with them even it is the survival of the fittest and the passing of the weak and helpless even to Cannibalism, as we know.

We will learn, too, of the hairless, furless and bare-skinned creatures, and to those of the many and varied garbed, such as we are, and that even the baby beaver and otter fears the waters it must exist in, and sometimes requires its mother parent to use force to teach it the first rudiments of swimming even, much as is the young eagle taught to kill; that scent nor sight of man does not alarm the little helpless creatures who have not yet been taught these lessons; that curiosity is more instinctive in young animal nature than fear, and that they did not always regard man as an enemy, and it is but education in the knowledge of man's killing power and habits that makes his approach to them almost impossible, and that in regions where they have not been hunted animals even suffer themselves to be approached and handled by men, and yet let them but receive their lesson they will hide or flee from man who harmed them not even.

Perhaps not one out of a dozen of the animals that we see in the woods today has even been hunted or shot at by man. But it has been taught that his is the danger scent of all to be feared, and in obedience to its teachings or impulsive lessons, and the effect of intuitive habit, it regards mankind as its greatest enemy of all things to avoid; and if we will but ourselves take a few doses of reason and judg-

ment, we will soon learn to combat these things, and to use or turn the knowledge thus gained to place them within our power, or capture them.

We will find, too, that with animal life extreme watchfulness becomes a natural habit, and is not prompted by habitual fear; that this intelligence is the result of observation, much as is ours. Hence, we must exert our superior senses to overcome theirs, remindful of the fact that they are not living the half-scared kind of life we think, but instead, in a contented sort of way, despite the fact of their being sought for and eaten by their enemies, hunting or hunted as the case may be. To them it is survival of the fittest, and there are unquestionably times when all animals seem to be at peace with each other; again, when all seem to be out, and the woods fairly alive with them hunting and being hunted—all possessing and seeming to enjoy their powers to in some way combat their enemies or capture their prey, they seem to decide whether or not to risk a combat or match themselves in fight or flight, as the case may be, or to, by subtle expediences, avoid, elude or outclass them. Here, then, is called in their ability to run, dodge, jump, climb, hide or swim, or seek the most advantageous shelter, where they are safe. We find proof of this in many striking ways, which we can with good profit turn to our account and their detriment; the tree climber always striking for the nearest trees, the antelope or caribou to the open, the moose and bear to the thicket, or water animal, like the otter, beaver, etc., to the nearest and deepest water, conditions, of course, even governing these things. On the other hand, assuming that the chances of the battle are unequal in any way, it results in the attempt to outgeneral one another in a way, as I have before emphasized, either by fight, flight, trickery, or even the acknowledgment of defeat, and to trust whiningly to the mercy or possibility of escape from its unrelenting foe.

Again, by the same token do they seem to realize when capture means death, as is evinced by the most frantic struggle and effort to escape. And now comes the strangest part of it all—so strange does it all seem that at first one is inclined to doubt the truth of it, and yet, if we will only stop to think, we will realize and give due credence to the fact

nevertheless, that to the captured or beaten animal submission and even death comes much easier than we with our tender thoughts imagine, for prior to the creature's death the animal seems to lose the sense of pain, if not all feeling.

Not that it is without pain or even suffering, but that it really is far less than our trained or over-sensitive nerves suspect or think. Nor do we have to look far for every proof or authority in these things. Take, for instance, ourselves. Thousands of such incidents happen amongst us in this world, when mortal and terrible, even fatal wounds have been inflicted, where in the excitement or heat of passion, or even fear, without any pain whatsoever being experienced. Not only this, but we have been known to feel no effects and to remain even in ignorance of "what struck us" until, perhaps, hours after others called attention to the wounds, or we felt its effect from natural yet ignorant consequences. But, then, this is but an incident, one out of a hundred perhaps that we know of, where death seemingly comes, devoid or robbed of all or most pain whatever. And that this is all the more so in "wild animal life" I feel most positive.

Ask any old trapper or hunter of experience and he will tell you of a hundred more such instances of but little sufferings from wild animal life thus, and that kind and merciful nature seems to indicate and provide an almost painless and submissive ending; that the shriek we sometimes hear, and attribute to pain, likens only to the cry of fright or the signal that it realizes it is doomed. It might be, too, that Providence suffers such an apparently violent death, not unlike that of our own, in lots of cases, where we pass away slowly but surely, even without suffering, although perhaps but a while before existence and life was by disease or accident rendered an unenduring torture.

Hence, let us but hope that nature is but kindly thus to the creatures in the woods. This much we do know: God in His infinite ways and goodness of heart has made proper provision for all things of His creation, and of this we are certain.

Again, too, we learn why nature has formed their animal bodies of such peculiar shapes and variety of form, all with a purpose as we find, be it of climbing, sneaking, running,

crawling, swimming or amphibious kind, and the more we study these things the more we marvel at how wonderfully nature has fitly endowed them.

Even the seemingly ungainly moose or caribou, when we have studied them, appearing ideal from the point of its teeth to the tip of its tail, there is something to be learned, inasmuch as they correspond exactly to their uses of these things. Jaws for gnawing, cutting, tearing, holding, chewing, sucking, snapping or crushing; even to the construction of feet or hoofs being most wonderfully correct, and in accordance with its purpose, no two being alike perhaps, and even the tails answering certain functions, as we shall all learn later on.

The squirrel tail even gives us an instance of a three-fold use in propulsion, support or balancing power, and in its leaping, acting somewhat on the aeroplane principle, which we are now aiming to attain, this applying mostly to animals of a leaping, climbing nature, especially so in the species which we find employ their fore paws for other purposes at the same time, while in animals of an opposite nature its functions and use grow less, as we shall later see.

Indeed, in every animal we find such differences. Take, for instance, in the paws and claws—some are capable of retraction, sharp cutting and having holding powers, others for prolonged digging or powerful blows, as instanced in the wolverine, badger and bear. Others are capable of continued flights, leaps, and of such form and shape as aids in their progress through the dense thicket and deep underbrush, over plain, barren or mountain cliff, while others possess all these traits in combination.

We will learn, too, as we go along that the hard hoof of the deer or antelope cracks and snaps the twig that lies in his path, while that of the bear crushes and muffles the sound, while the weasel glides over it noiselessly; that the foot of the reindeer or caribou enables its free use and serves as a snow shoe almost in the deep soft snows of the valley, plain or barren, and yet gives forth a crackling, noisy sound peculiar to their trotting pace. Examine the foot and you will find it spreading or clover like, and expanding its edge even sharp, so that it travels softly and easily over the smooth and slippery ice, and at the same time enables

him to dig deeply down for his moss and lichens or foods on which he depends for his existence in the treeless wastes or arctic barrens.

On the other hand you will find the hoof of the moose, deer and antelope so blunt and thin, rendering travel thus in the deep snows next to impossible, especially so if crusted. Hence, do they hug the woods and feed, straddle or ride down the bushes, smaller trees and twigs and maples, and travel not so far, oftentimes necessitating "yarding" in the districts which they traverse, not the yards that many of our readers and writers infer, but twisted long trails and passageways through the snow and trees that lead here and there for miles, and which, to keep open, they even travel frequently through the woods to keep thus so.

While the caribou roams as he pleases almost in low barren tundra or morass, travels far and near as is his want, feeding either on the deeply covered nourishing lichens or on the tree mosses of the forest "windfalls."

Again, too, we cannot help but marvel at the process of evolution in animals and habits. Take, for instance, the otter, bear, fisher and the animals who have acquired the habit of taking to the water, fishing and also climbing trees. All bears love to fish. The polar bear lives thus, and even outdoes the fish, walrus or seal in speed and fishing. Even old "Eph," the grizzly king, who climbs not the trees, yet is as good a fisherman as any, while the otter and fisher does all three, and holds his own with the best of them, and digs his hole in the ground besides. Even the Indian, Lapplander and Newfoundland dog and others turn fisherman and hunter, and there is hardly a dog of the north but turns out to be even excellent salmon fishers, and yet the beaver, who inhabits the waters mostly, prefers the bark of trees and woods for his food. Water is his home nearly, yet he builds houses that defy the elements, animals and man almost to break open and enter, and who, unlike all other animals, have strong family ties which bind even generations of them together in one large family, year after year, even to enlarging their homes to accommodate the increase and growth thereof, or moving, building even larger and more commodious quarters if needs be, much as we build larger and more commodious houses to accommodate a growing

and congenial family, and who seem to grieve and mourn the loss of a member or loved one even to the extent of becoming outcasts and bachelors, seeking solitude and living thus apart or forced away from others—a vast distinction between those animals whom, as I have mentioned before, drive out and desert their young or destroy them, **simply to get rid of them**—in accordance with wild animal ways.

Again, we will learn of the traits of these blood-sucking vampires, of the weasel tribe, demons of the woods as they are, tell of the martens, sables, and wolverines, ways, and the power of the trapper which enables him to both lure and deceive even the most blood thirsty of them; of their remarkable sense of smell and their unconquerable desire to kill, even after their unsatiable appetites are appeased; even to the death-hold of the playful badger and the use of its hair—all shall be taken up in turn, in an effort to show that of life in the woods, indeed we have much yet to learn.

As we go further along we find out and learn of the reason why and when animals change their coats of hair and fur, and how it takes on the more suitable colorings and weights; as to how and why the antlered monarchs of the forest lose and grow their successive horns; why even the hairless species supplement their bodies more or less with layers of warm fat or "blubber" as their seasons or surroundings call for, especially in the case of all sea and water fur-bearing animals, and show why seals of the fur and hair variety seek the land and distant rookeries during their breeding seasons, there remaining at times for weeks without water or food, bearing their young and guarded and isolated by their mates, so much so that when they take to the waters again they must often swallow stones to ballast or balance their bodies for the swim again, strange though it may seem. Again, too, how nearly all the different water and land animals even secrete, retain and give off their peculiar odors or scent, by which they are recognized, repel, attract or arouse the passions of the opposite sex. How generally these differ in each individual specie; show you how they act where they are found; that their functions and their uses may be noted with interest or used with profit

and value—things generally known by all trappers, but by few hunters, as a rule. Again, too, how this greasy and oily substance can be located where it shall be found to terminate from the gland to sac or bladder like a receptacle, wherein it is made and stored as a product and made by the yielded process of nature, and why it is especially strong and active in the rutting or breeding season, more than at other times; hence, more valuable.

I shall show you that it is by these scent glands that they recognize friends or enemies, even to the sexes without seeing them, added to by powerful hearing and eyes that particularly see motion. We shall learn, too, that nine out of ten animals can be deceived or lured by the hunter or trapper, even when close to them, by remaining still and not moving; that he even can attract, lure and deceive them with the belief that we are of their kind, even to the mimicry of their movements, sounds and smell, and that as long as you remain still, they seem to be in doubt or uncertainty of your actual identification, and if you watch them closely, you will even see them search for you with their ears, and lick their nostrils and take more frequent long sniffs to make their scent more keen, thus showing that he trusts not to the easily deceived eye, but to his other and better powers. Failing in this, he will perhaps even challenge you in a peculiar but certain way, rising on the hind feet suddenly to take a better view, or by a stamp of their fore and hind feet or by a jump toward you, all with a view of receiving an answer; that, too, even the Indian and old hunters can answer this challenge, animal like, even to a degree of reassurance, such as you never dreamed of, mimicing a friendly cry of its own or other harmless species, even to the employment of a deceiving scent to aid in the deception, for, mind you, man himself gives off a scent that is fatal to success in the very near approach of game. Especially so is this the case when his body becomes heated, excited or perspiring, and if you have hunted or trapped much, you can soon learn to distinguish the larger animals yourself by this peculiar scent, especially so in certain seasons and in the dense woods, when the leaves are moist and the atmosphere damp and close. This is particularly noticeable around dens, moose yards, runways or other

regular feeding or breeding grounds; then it is not only perceptible, but at times objectionable almost—birds even being included in this as well as many of the species, giving off a stronger scent thus than others, rendering it an easy matter for men experienced in such things to even identify the animal to which it belongs. Nor is this trait confined to life in the woods. Fishermen, even “whalers” of experience, smell fishable waters with a positive degree of certainty; in fact, there is hardly a cod or mackerel fisher but can, by these means, locate and follow a shoal or school of fish even at night, for they give off even a more perceptible scent or smell than do the animals, just as does the pine, cedar or other dense woods betray its proximity to the nose of the experienced woodsman long before he reaches or sees them.

Neither must we forget that there are birds who burrow neath the ground or Arctic snows for their home, while animals even nest in trees; that, too, birds build nests from the down of their breast only, yet never nest in trees; that there are birds that can fly, but cannot walk; even birds that swim, yet cannot fly; others that “strut” and parade their beauty, form partners and even dance to the music of their own cackle and play games, such as even we. Perhaps, too, among my readers, there are those who have not yet seen or heard of the “White Flag” in the woods or chase, or learned by experience the teachings and signals that its ever silent movements give. If so, perhaps he has not yet learned that even tails can talk, and if he has learned all this perhaps, too, he listened to the mournful cry of the mother animal seeking its lost one, or the plaintive cry of the young seeking its parent, which he has gathered to his harvest or stock of pelts by his skill as a trapper, or the distant shot of a wandering one when hunting. If so, he will remember, for it is one of those sounds or lessons of nature that once taught is rarely forgotten, yet often practiced in the “Lure of the Wild.”

Nor have we forgotten the dissimilarity of animals, or the peculiar or well known traits—the subtle craftiness of the wily Fox, who in the unequal chase even leads us all astray; of the animals of the Cat tribe, whose tail so plainly bespeaks anger or fear, of the home-loving, almost human abili-

ties of the Beaver, of the Prairie Dog, Owl and Rattle-Snake, who while they prey on the young of each other, nevertheless live in terms of toleration, if not intimacy, together in their similar though strange underground homes.

We will see, too, the Otter slide the steep bank in playful glee, or the Bear and Coon drop from the high tree without hurt or harm to themselves; learn how the Possum and Fox both feign death and suffer even the test of torture and time, and find out why there are hairless tails; that even birds imprison their mates, and why and how it is done; that there are even wild plants and flowers that trap, catch and eat insects; that there are birds who can stand, run and dance on the waters; that fish frozen for weeks can be thawed out and live again. Learn, too, of the duration or age of life in all birds and animals, and that all animals fear both the storm, lightning and thunder, hole and den up before and during storms; that the hibernating habit is not confined to the bear, and that they often do not hibernate at all, and why. Not only this, but of their lethargy, medicine and foods which enable them to hibernate, and the antidote they seek when the long sleep is over for recuperation.

We will learn, too, that animals and birds are good weather prophets, and are particularly busy and active at certain times, and at others are not; that even we can learn much of unmistakable weather signs which will be favorable or unfavorable to the chase; that all animals stay holed or denned up, or huddle together at frequent periods, and likewise that it is useless to hunt for them at these times; that the very mark on the trail of their feet shows plainly their actions, route, size and even indicate to the speed at which they are actually traveling; that even animals lose their control of action and get rattled, much as does the hunter who experiences so-called "Buck Fever," and that it is fright, not fascination or charming, that enables the snake to secure its prey.

We will know, too, why animals become nocturnal in their habits, roam around at night instead of day, and go particularly into the details as to when is the best time and where are the best places to locate and find each and every species. We shall learn, too, of their sickness and disease and how they search for the medicine plants and roots that we ourselves use as drugs to combat their ills; learn even how they

meet death with that same degree of equanimity as they inflict it upon others; that kind and wise Nature teaches even the animals to anticipate and prepare for death from old age, robs it of its seeming terrors, and commands submission to its strange laws, many as they are, indeed.

In concluding the chapter and subject I can only say: Who is there among us who have hunted much and heard not the sudden long, low bellow of the Cow Moose? Or the unnatural one made from the Birch Bark Cone, in the hands of the experienced hunter or guide, which is sometimes answered and followed by the Bull Moose in reply? If so, perhaps he has heard the "Challenging Call" or the "Chug"; if so, perhaps he has seen the Monarch of the Wilderness answer and breast down or ride the young sapling of the Moosewood, Birch, Willow or Maple Tree for its mate.

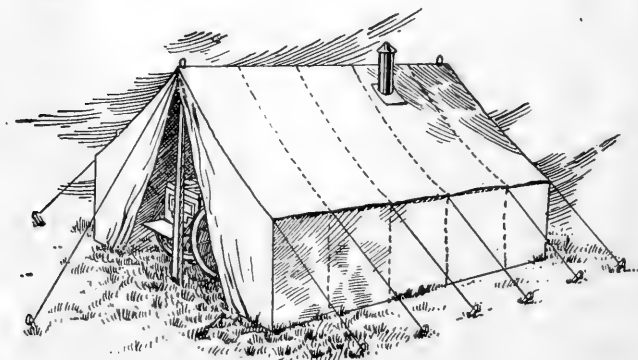
Perhaps, too, he has witnessed the rival struggle for the favors and possession of the Forest Queen, and if so, maybe you have been told of the once King of the Caribou or Moosherd who, though majestic, through old age has been cast out and forced to roam in silence, forever and alone an outcast of his kin. And far and deep into the almost impenetrable depths of the forest woods, once in a lifetime the old hunters and trappers come across their "boneyards," where the mighty Monarchs of the Forest seek the same lasting resting places of the Antlered Tribe that have passed away in peace before them, and that these seemingly ghostly places are or seem to be shunned by others unto the last of their doughty race, even remembering his teachings or instincts to the very end.

"For the Master of Destinies in Mercies does mind
All of the creatures as well as mankind."

Again, too, why not make a study of everything that pertains to the woods and waters as well as life therein, and apply the knowledge thus gained to our mutual advantage, when in the chase or whilst living in the woods or forest, where we sojourn, that we may reap the benefits thereof? Why not learn of the varied and peculiar, or valuable properties of the trees, woods, barks, plants and roots, of the formation of hills, prairies, mountains, valleys plain barren or thickets, wherein hides and lives the game we seek, and over or through

which our route lies—all this that our skill in anything which pertains to the chase or hunt may increase and lead to success under every condition, whether it be that of living off the resources of the country we are in ourselves or to instructing others as to similar requirements. To do this we must unlearn much which civilization and progress has taught us, and learn again that which our forefathers really knew before us, but which in these days of advanced civilization we have almost forgotten; not that it is essential, not that such knowledge might be, but that it will at least add to our success, whether it be for a week or a month, or in a single day.

And while speaking of this, let it be borne in mind that such things are of value in a thousand other ways than to the hunter or trapper alone. The Geologist, Ranchman, Farmer, Builder, Homeseeker, Explorer or Traveler all benefit in very many ways by such knowledge. Indeed, it is often such information as leads up to a more definite way of determining the habits and peculiarities of the game we seek, and aids to its pursuit and capture. By such knowledge we familiarize ourselves with their failings and shortcomings, learn why they seek certain locations, when they are to be found there, when nor, and why.



WOODCRAFT AND TRAPPERS KNOWLEDGE

To follow them by track or trail to avoid their knowledge, or to impose upon their ignorance and to match cunning with skill and superior intelligence. Thus to do we learn the rules of Wilderness, Mountains or Desert Travel, how to prepare the hides or pelts of the animals we trap or kill for the market, shelter, footwear or clothing, and its flesh for food, for present, future or emergency uses, so that the journeys through the forest can be made safely and easily. By it we learn the use of barks, roots and plants of life and profit thereby, whether it be under the burning sun or the tropical wilderness, the lowlands of the temperate zone, or facing the winters of blast in desolate regions amidst deep, soft or frozen snow through which we must pass, depending for our existence or in search of gain.

Here must the trapper find his way, his food, his drink, and perhaps his coverings or shelter. He must trail or find his game, kill and dress it, make his fires, fashion his weapons or his clothes, and keep himself warm; to dress a wound, cure the bite of a serpent or rabid animal, sting of the insect, nurse or starve the fever or feed the cold. In the treeless wastes he must learn to climb for water or dig for his wood, thus reversing the useful customs with which he is most familiar. Again, to build a snare, dead or pitfall trap, when his weapons fail, to form the crude snow shoe or ski—scale a mountain, climb a tree, or make a fording across a treacherous stream, or improvise a sling-shot, bow and arrow, to pack a cayuse, build a raft, boat, skin or bark canoe, shoot a rapid, climb a mountain or bridge a pass; he will learn to mimic the hoot of the owl, the drumming of the grouse, the cry of the eagle, call of the moose or elk, howl of the wolf, coyote or the yelp of the fox, to trail them from the sound, or by the track and sign, be it the fox, beaver, lynx or bear. He learns, too, of the approaching storm, the herald of the frost, sun dogs, or the token—halos—of clearer weather; to locate the fixed and planetary stars, to guide himself by, learn the time of day without a watch, or to guide himself without a compass. Not that he is to master all these things, but that should occasion arise he can by his own abilities provide for his own and others'

TRAPPING IN THE POLAR REGIONS



The Author and Siberian Trapper with Snow Ski.

wants, in a way such as he gained his other knowledge from books, school and study, and does one but bend his energies in this direction, such knowledge he will find greatly to his advantage in many crafts and stages of life, when the need of such things arise.

“For Nature unfolds its secrets bare,
And we profit by all we find written there.”

Why not, then, commit to memory the signs and tokens which lay and are to be found along our trail and route, watch the tracks of the animals we seek, and trace them to their lair or search for the shrubs and roots which form their foods? Why not know that the poplar and birch bark of spruce gum will repair a boat or build one—that sedge grass will yield twine that the woods of the forest will build us shelter—that moss, mud or clay will clink its crevices or plaster its cracks, or that bark and sods roof it well—that bulbs, tuberous roots, bark of trees, mushrooms and even leaves and plants increase our food supplies—of the fatty or resinous woods that yield torch and light?

No man can ridicule such knowledge, lest some time in life he may feel the effects of his ignorance. Why not qualify in these things as well as in the use of rifle or trap? Has not such knowledge made American woodsmen famous, and added chapters to our history and success, to which all the world has listened, the age marveled at and profited by?

No man is a born woodsman. By his knowledge, though he may acquire the title, and yet all can learn by observation, study, notice and memorize that which will often serve and repay us in “tight places,” and lead to the capture of perhaps a dozen animals instead of one.

Is not trailing an important art? Without it he can neither disguise his own “hoof marks” nor follow and locate the quarry he seeks. He must learn to perceive and “read signs” for the correctness of his judgment depends on it. “Sign is not trail,” but trailing is the art of involving trail from sign. By it he learns to read strange marks on the snow or ground that to others would be lost, to tell what made it, its age, size and the direction it goes. A meaningless mark is thus turned to his advantage and profit, and if he lacks skill as a shot he makes up the deficiency and more

by trailing, which to the trapper is now as essential as is the hinds of the chase, for by these means does he at times increase his catch sixfold, or supplement his knowledge, store and provisions.

Let, then, the reader study well these pages and chapters of this volume, for in them there is much of the first rudiments to knowledge of this kind. It is for you alone to take up the subject you deem most fitting to your purposes, and to learn by observation more if you will, and if you but set your mind upon the accomplishment of a given purpose it will be found an easy task, especially so if you follow up the information given you or suggested by these pages, by personal experience along these lines, considering well the conditions which govern all things.

There is much yet to be learned, hence we must trust not to hands and feet for this knowledge, but to the use of our head and the exercise of common sense and superior judgment necessary to do all things well.

True we cannot, need not, all be as well versed in the art of Woodcraft as were those famous Frontiersmen and Pioneers of Civilization such as we have mentioned, and yet there is no earthly reason why we cannot be if we choose. For have we not advanced and made possible the equal of their achievements in a much easier way? Science and experience has placed in our hands the more perfect weapon and means—the match instead of the flint and steel, the deadly cartridge in place of the powder and shot flask, and the Binocular Field Glass soars the distance of a day in advance, while civilization has made its stations and objective points everywhere about us. Where for these men there was little or nothing, today the unknown regions are almost a thing of the past, and go where we will we find civilization, and Man has gone before us, pointed out the direction, made easy the way.

Today the Wilderness and Jungle have been shorn of much of their mysteries, and we fear not to penetrate through its depths to beyond. Go where we may—north, south, east or west, we find civilization before and behind us both. So much for progress. Hence it is obvious that almost any man can master the art of modern "Woodcraft," does he but learn the knack of adapting himself to the

conditions necessary to sustain life in his travels to and through his route, until he reaches civilization beyond; and to be ordinarily well versed, and but a fair trapper or hunter even, he could exist safely and comfortably even for years, did he but make up his mind and not lack in common sense, nerve, will-power and instruction necessary to accomplish the end in view.

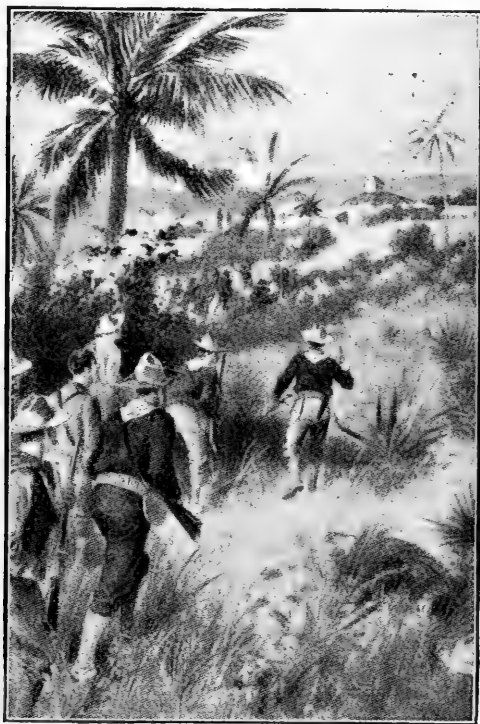
Such knowledge as this when committed to memory is better than a "pack train of supplies," which in nine cases out of ten only hampers and impedes one's progress. Indeed, the fewer articles or things one can get along with the better, and the more our knowledge grows concerning such things the smaller does our "pack sack" or outfit become. Indeed, we are much better off when we practice the art of traveling light and right. I care not where a man is going, or for what purpose, the less he takes of the 101 "What Nots" on a trip, and the more he sticks to the "Simple Outfit Plan" the better and greater will be his success, provided, of course, he chooses the essentials, or has knowledge to improve or use them.

The trouble is, in our ignorance we "tote along" too many things that can be easily dispensed with to our detriment. Hence, if we wish to live wisely and well, let us leave frills and fixings behind, and draw from our storehouse of knowledge instead. In short, if we wish to accomplish something, make headway, so to speak.

Don't put your money and time in seeking catalogued and elaborate kits, but in instruction as to how to get along with less of the non-essential things. I care not where the route of the trapper or hunter lies, there should be nothing carried along but what can be easily packed on his own back, as far as he alone is concerned; to litter himself up with more, unless he was on an exploring trip, would be a fallacy which could be likened only to a desire to "rough it." No woodsman or trapper on earth indulges in such foolishness; to him a pound of weight means a mile of progress.

It is knowledge that points a way to the hidden spring, creek or the moist ground by which he quenches his thirst, fills his water bottle or canteen; he chooses foods of a nutritious, simple variety, that will answer his simple needs;

eats when he needs it, we, when the hour comes. How much better off would we be if we emulated his plan? Instead, we load our packs and stomachs with indigestibles that test our strength to carry, and valuable time to prepare. He holds down to necessities, and his knowledge of woods life and skill furnishes him with luxuries galore, that we insist on toting along to our detriment. This is wrong; it is the easy way that makes us happy and content, puts red blood in our veins, makes the chase and trip so interesting, success gratifying and easy.

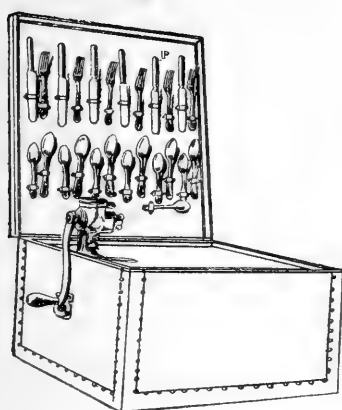


THE RIGHT OUTFIT

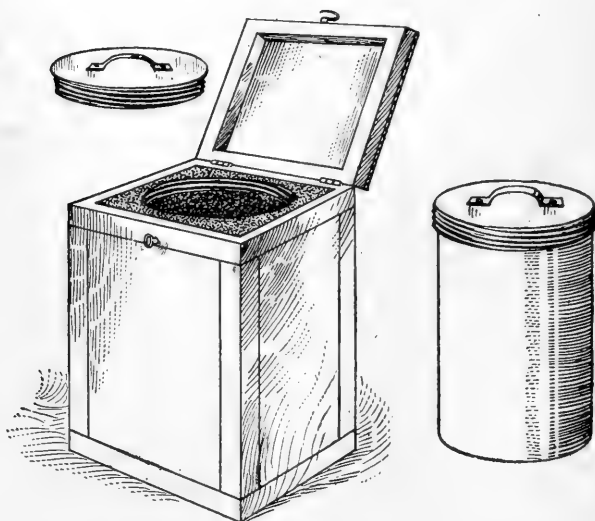
And now let me here explain what I consider the ideal Light and Right Outfit for the Trapper or Hunter in the woods.

First of all, this depends on conditions, season, location; for it is apparent to the intelligent that one must outfit according to the requirements and the needs of the regions he is to traverse. It makes a deal of difference if his route lies across a desert or plain, through the forest, mountains or waterways. Supposing, for instance, it is for all three. Then, indeed, can it be termed an "all-around outfit," dependent then on the knowledge of the resources of the country through which he must pass. Then does it call for head work, and usually the more of this kind of thought one bestows on such an outfit the less will his back and mind suffer "toting" it about with him.

In its selection he must use good judgment. Cut out all ideas, fads and trifles that savor of the "Might Come in Handys," which in "number and variety" somehow creep into the best of one's kit, despite the fact that we all preach against it, much as does the drunkard preach against rum. There is too much of this "cut and dried" sort of way of going about things, and it is only when we get down to "actual dead rock" that one realizes that things aren't put just according to calculations; and about the time we get down to that stage of the game where we have to hustle for a while, depending on our skill and effort for an existence in the woods, do we fully realize our shortcomings, and wake up to the fact that we are pitifully ignorant of Animal and Forest Life or ways. It isn't the ability to shoot straight—not by a long shot, nor to tote a heavy load or travel distances, but to learn something of the science and art of knowing where to find the "furs," and in finding it where we know it to be; incidentally, using some of the time usually spent in overhauling catalogues, or an effort to post up more on the habits and movements of the animals we seek, and in familiarizing yourself into that location. Even to the extent of spending a few moonlight nights looking for them, watching their ways and profiting thereby, and I doubt not that you will see things that will



Waterproof Ration or Grub Box and Table Combined—with Contents as Shown.

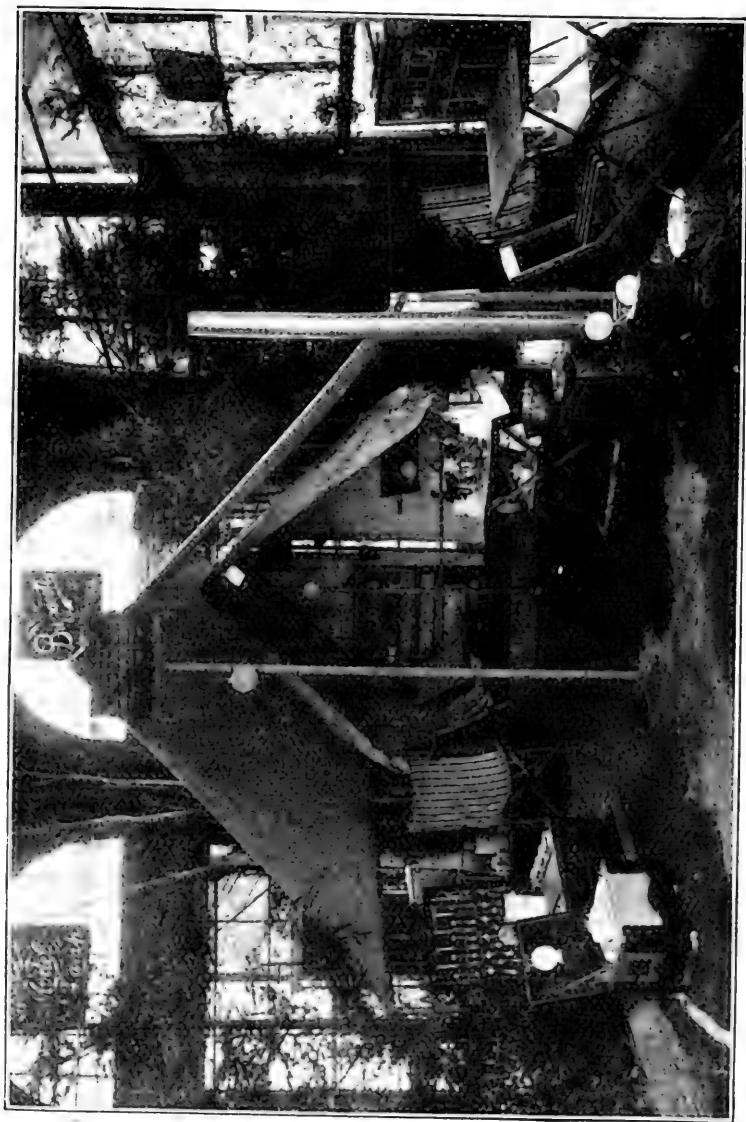


Portable Fireless Camp Cooker.

give you more genuine pointers than all the yarns spun around cabin fires put together. Don't go at things half-hearted. It is no use trying to cut down a tree by lopping off branches first, not always getting down close to the roots at the first crack, and instead of believing the fact that animals are decreasing, hunting and trapping getting harder and less paying, think up a bit on the pleasure and freedom of it all, and the fact that it is up to you to get busy and make good. Success isn't coming along; you go after it and meet it half way; shipments and records prove there was never a time in history when such catches were made as there is today; conditions never were better for a trapper or hunter's success. Think over these things a bit, boys, then get out, "hustle and make good," for it really, after all, is up to you.



"An Exposition Exhibit of a Portable Camp and Its Equipment"



For this Exhibit (the Author) received Two Gold Medals and Diploma Honorable Mention.

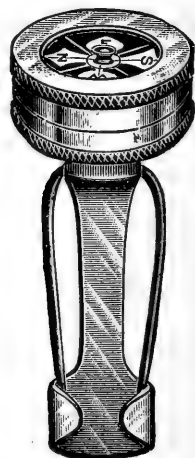
“OUTFIT AND OUTFITTING”

Waiving luxurious comforts, it is always desirable to travel as lightly as possible and as little encumbered, especially if the tramp be long and continuous and not broken by occasional temporary camps. Nevertheless, experience teaches that the trouble of carrying an extra pair of walking-boots, or at least a pair of moccasins or easy shoes, is well repaid. If your feet are blistered, coat the inside of your socks (woolen are best), from the ankles downward, with common yellow bar soap, repeating the application for two or three days, by which time the feet will become hardened. It acts equally well as a preventive. Never suffer the shoes to dry after wetting, before they are thoroughly oiled, soles as well as uppers, with castor oil. The least inconvenient dress is a woolen overshirt with pockets, worn as a blouse and fastened around the waist with a sash or belt. The toe of a stocking fitted into the shirt makes a good pocket, if you have none already. A heavy Hudson's Bay or Canadian overcoat, with hood, serves as coat, blanket, pillow and cap combined. Always carry plenty of twine and large needles. If a piece of your clothing is torn out, patch it with anything available. The legs of a boot make the best possible seat for a pair of trousers, and can be as easily fitted as woolen stuff. If your felt hat is too loose, put a stick under the band and give it a half turn. If you want a candle-stick make a loop of birch bark and slip the ends into a split stick; then insert your tallow dip. If you wish a torch, take sheets of birch bark and slip them in the slit. A pine knot is better than either where no danger is apprehended from fire. If your matches are wet, and it rains heavily you can find bits of dry punk in the excrescences under the bark of birch and maple trees; flash powder into lint or tow and then ignite the punk. Either fire powder from your gun or use a flint and steel. If lost in a hardwood forest and can find no water, one can generally get sap enough for a drink by cutting a chip out of a maple or birch, and making a spout to let it flow clean of the trunk. Water can be obtained by digging a hole into marshy spot and filling it with grass. Then take a piece of elder, pipe-

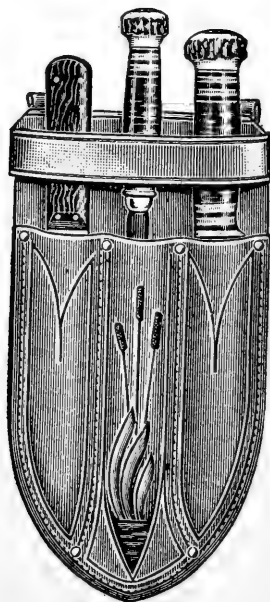
THE TRAPPERS THREE FRIENDS



Waterproof Match Box.



Compass.

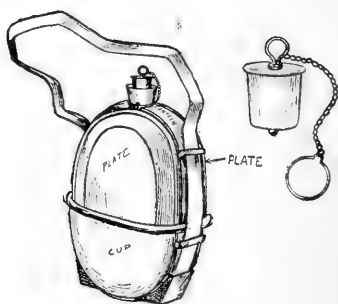
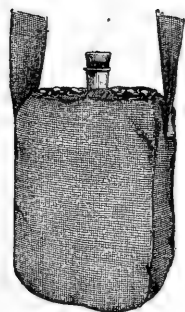
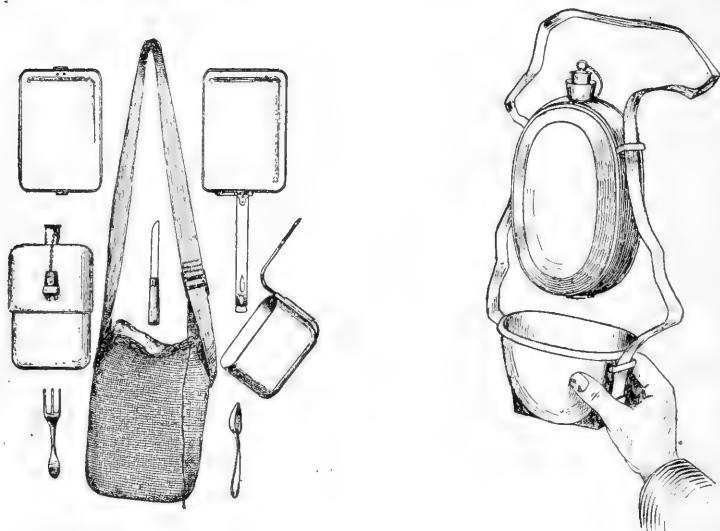


Skinning and Cutting Knife, Steel and Case.

stem, or any hollow tube and setting it perpendicularly upon the grass, pack the earth around it. Then apply suction with the lips and you will get water enough to assuage thirst. (By the way, in a desert birds fly toward water in the afternoon, and away from it in the morning.) Carry your matches in a vulcanized rubber box to prevent wetting; or a bottle will answer. There are a thousand little devices and resorts which one learns by experience, and which occur to him naturally when required, but are difficult to inventory for others' use. For provisions, one must be governed by circumstances. Tea, flour, ham, salt pork, soda powders, salt and pepper in quantities required, are all that are necessary. Never carry ground coffee, it is bulky and will impregnate the other stuff with its aroma, especially when wet. Buzzacott's condensed coffee takes no room, and is a luxury indeed. But, if the sportsman insists upon carrying ground coffee, he will find the grounds very useful to keep fish fresh, taking out their entrails and gills, and sprinkling the coffee grounds thickly into the belly and mouth of the fish; the more grounds used to each fish the better.

Desiccated food of all kinds is compact, and goes a great way. Pickles and onions are a desirable addendum and an excellent relish. We are writing for those who propose "roughing it" in earnest. Of course, for ordinary camping out one may add as many luxuries as he likes, and the greatest of these is a camp kit of tin ware, containing knives, forks, spoons, cups, plates, broiler, frying-pan, teapot, pepper and salt box, syrup and tea caddies, sufficient for five or six persons, all fitting nicely together in a large water-pail, the whole costing about twelve dollars and weighing nine pounds. The old army knife-fork-and-spoon combined is very convenient to carry. Always take blankets and warm clothing when it is possible, and a change of under and outer clothing. One's cast-off suits are the best, as they can be thrown away in the end of the journey, leaving the party less weight to carry home with them. An "aqua scuten," a small waterproof cape that can be folded into a small compass in the pocket, is sometimes a great comfort. Of miscellaneous articles for a party who intend to remain much in camp, we enumerate the following:

WATER CANTEENS AND COOKING OUTFITS



Canteen with Combination Cooking and Messing Kit. Plate, Cooker, Knife, Fork, Spoon, Cup and Canteen Combined.

Rods, reels, lines, flies, bait hooks, trolling tackle, gaffs, landing net, bait box, float.

Woolen and rubber overcoats, old shoes, rubber leggings, extra boots, slippers, or moccasins.

Hatchet, knife, pistol and cartridges, screw-driver, awl, pliers, gimlet, whetstone, twine, wire, rope, leather straps, tacks, needles, pins, thread, wax, scissors, paper, pencil, rubber.

Compass, matches, fuse, candles, spring balance, corkscrew, pocket pistol, field-glass.

Soap, towels, comb, sponge, looking-glass, goggles, linen and flannel rags and raw cotton, to be used for cuts, wounds, cleaning guns, mending, etc..

Pipes, tobacco, maps, diarrhoea mixture, cathartic pills, salve, court-plaster, ammonia, sweet oil, and a mixture of tar and oil as a preventive against flies and other insects.

One India-rubber bag to hold the "kit" is a desirable addition to an outfit, as it makes a portable package and keeps its contents always dry.

One thing which every hunter should appreciate is comfort in camp, and to be comfortable and happy should be his main business. "Roughing it" is not healthy on account of poor food badly cooked, sleep taken on the bare ground, unnecessary exposure and dirt. Every one should be careful to provide an abundance of good food with proper means for cooking and caring for it conveniently; he should camp in the best attainable place, considering always sanitary laws, just as potent by the way in camp as anywhere else; and camp, too, in time to make himself comfortable for the night, when it is daylight, and everything is handy around. Camp "tricks" should be kept in their places, not thrown helter-skelter, or left lying where last used, the common opinion that order is opposed to easy comfort and freedom from care, to the contrary notwithstanding.

In sleeping, but little, if any, more bed clothing should be used in camp than in a house; too much cover has given many a city fellow a cold, and disgusted him with sleeping out of doors. He thinks that as he has no roof over his head he ought have a thousand blankets. In the middle of the night he gets into a perspiration, kicks off

The All Round Camp Sleeping Combination Outfit.

The Sportsman's Mattress, Pillow, Bed, Blankets, Hammock, Carry-All, Roll-Up all in one.



As a Bed.



Open showing Blanket Folds, Pillow Flap and Mattress.



Comfort Out Doors.



As a Hammock. Simple, Convenient and Safe.



As the Carry All,

Weight in All 15 lbs.



All Rolled Up.

the cover, cools suddenly, and the next morning swears in a hoarse whisper that sleeping out of doors is a humbug. No more cover should be used than will keep the body at a natural heat; anything more is bad, even if not enough to cause perceptible perspiration.

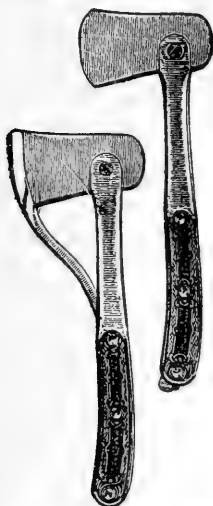
In making up your party for a camp, it is of the first importance to include only congenial minds and dispositions. No matter how dear to you your friend is, or how warm his affection may be for you, if your habits of thought and body are not under control the little things of camp life will be the fruitful causes of unhappiness and discontent. The number of the party has, of course, to be considered, and the style of camp life, whether you do your own work or employ help. One man who shirks, and "the best fellow in the world" is often the man, will interfere sadly with your pleasure. Men incline in camp to couples. Three can seldom agree long, for one is almost of necessity "left out in the cold."

No party should attempt to camp out unless one at least of their number is thoroughly conversant with woodcraft, and able to devise and direct so as to secure the general comfort under all changes of circumstances and vicissitudes of weather. One great essential to thorough enjoyment is an equitable division of labor, and a faithful observance of the duties assigned to each member. This is especially important where no servants are employed. Four persons constitute a large enough party. One should be a fair cook; another should be able to keep the camp supplied with wood and make a fire, which is a task by no means easy; a third should be a fair shot and a good pot-fisherman, for a variety of food adds much to the charm of camp life; and the fourth should be apt at building a shelter and pitching a tent, and a good boatman withal. Thus organized, a party is ready to start for the woods.

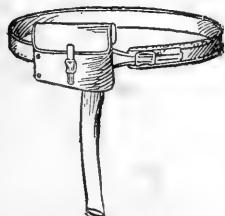
We cannot too earnestly urge the advantage of taking the various kinds of condensed food which ingenuity has devised, for they not only greatly reduce a load, but add much to the ease and comfort of all, and materially lighten the labors of the cook. "Buzzacott's" condensed milk, coffee and sugar are a great acquisition. A single can of coffee will serve a man for thirty days, and really needs

Reliable Camp or Sportsmans Specialties

Closed. Opened.



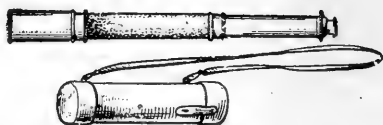
Pocket Safety Axe.



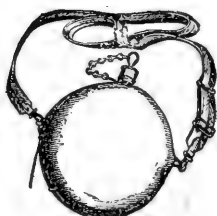
Hunters' Axe Belt and Sheath.



Pack Harness



Sportsmen's Telescope and Case.
Very powerful.



Water Cooling Canteen.



Pocket Scales.



Principle of Construction.



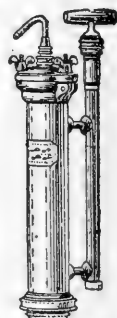
Safety Compass.



Waterproof Match Box.



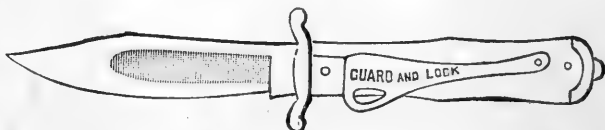
Fish Knife.



Camp Filter.
1 qt. a minute.



Hunting Knife.

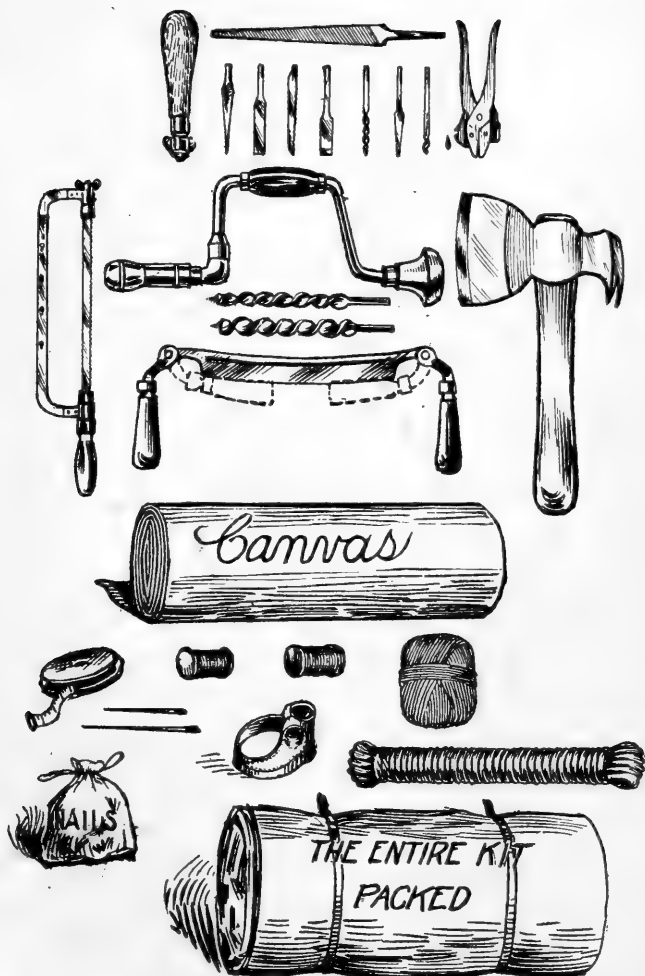


Folding Pocket Hunting Knife

neither milk nor sugar. Put a part of a teaspoonful in hot water, stir it, and your beverage is ready for use. The beef will make a variety of soups, if used according to directions, and the milk is useful in compounding various dishes. The self-leavening flour is another indispensable. It has only to be mixed with cold water or milk, requires no salt, and with slight change in preparation will produce bread, biscuit, cakes, etc., in a very few minutes. The bones and small pieces of meat left after cutting up venison, when boiled to a jelly in the camp kettle, strained, and put away cold, form the ingredients of a very nourishing soup which can be prepared in a few minutes at any time by adding a sufficient quantity of hot water. With a little potato and onion chopped fine, red pepper, salt, and flour, or dried tomatoes, it can be made really delicious.

To carry the camp stuff most easily, back-loads should be so made up that the softest parts should rest upon the shoulders and neck, and when adjusted and supported by a strap that passes across the forehead, boxes and cumbersome articles may be packed on top; by this method fifty pounds may be carried with comparative ease. Fishing rods, paddles, axes, etc., should be tied together in bundles in two places at least, and when shouldered, boots, kettles, and the like, may be slung over their upper ends. Where a canoe or boat is to be carried, lash the paddles lengthwise one foot apart across the bars or thwarts amidships, turn the canoe upside-down, rest one end upon a convenient projecting branch of a tree at such a height that you can easily pass under, and then thrusting in your head so that the paddles will rest upon the shoulders, raise and balance it, and proceed on the journey. If the canoe is too heavy for one person, it should be shouldered by two men, one at each end, and carried right side up. There is a knack in walking, too, which should be acquired, namely: always run your eye along the trail at least a rod in advance, so that you may not only see soft places, rocks, roots, and other obstructions, but calculate to a nicety just where your steps are to be made. This practice will prevent stumbling; it also enables one to discern a blind trail easily, and teaches him to observe any strange signs which might otherwise pass unnoticed. If you are thirsty by the way-

TRAPPERS OR HUNTERS TOOL OUTFIT

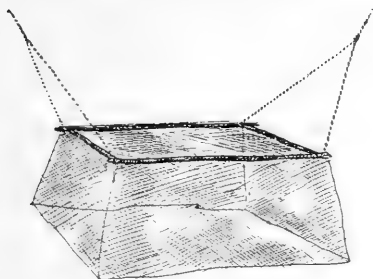


With These Essential Tools a Log Hut, a Cabin for Winter Uses is Assured.

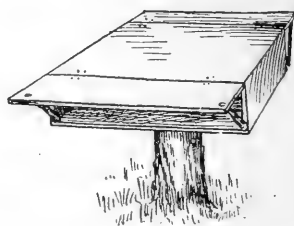
side, and have no cup handy, bend up a portion of the brim of your felt hat so as to form a cup, and drink out of that. It is better than lying flat on the stomach to drink from a pool or spring, whereby there is real danger of swallowing living creatures that may possibly cause serious difficulty afterwards. A cup may be instantly fashioned by cutting a slit longitudinally in a piece of clean bark; and lapping the divided parts, one over the other, hold them between the thumb and fingers.

Camp sites should be selected for access to wood and water—wood first; but there are many other considerations to take into account, such as shelter, immunity from insects, or proximity to game. A high open knoll away from water is preferable, in fly time, to a location on a river bottom. Sandy beaches or gravelly points are liable to swarm with midges or punkies, and the thicket woods with mosquitoes. Points where a breeze draws up or down a stream are the most desirable. Black flies do not molest between sunset and sunrise. The camp site being chosen, the first duties are to fix the shelter, cut wood, and get the kettle boiling. A letter A tent is the greatest luxury in camping, but in fair weather a tilt or half tent of canvas or blankets, or a "rough slant" of bark or boughs laid on poles supported by crotches, are comfortable enough when a good fire is kept up. Or, for the matter of a night, a screen of spruce boughs to windward, or the canoe turned over to protect the chest and shoulders, is a good makeshift. The lee of a protecting ledge, with a bush screen, is a dry and comfortable camp. A permanent shanty is made with sides four logs high and a peaked roof of poles covered with bark or split shingles four feet long, with a hole at the top for smoke. In this way also a conical wigwam can be constructed, Indian fashion. Make the bed of evergreen boughs—balsam and hemlock are the softest—place them in layers with the butts all one way, and shingle the butts of the first row with the tops of the second, and so on successively. Fires are made in various ways. For a good cooking fire, a back should be made three logs high, supported against upright stakes driven into the ground; two logs at right angles, or two stones placed in front to lay fuel on, will raise the latter from the ground suffi-

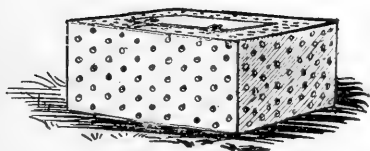
THINGS THAT CAN BE MADE IN CAMP



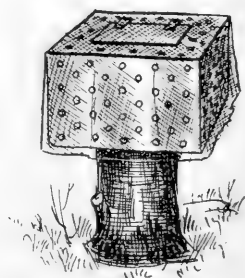
Hammock Fly Net.

Grub Box from a Kerosene Can,
Fly Proof.

Ant-proof Ration Box of Green Bark.



Live Fish Box.

Camp Table With
Understorage Chamber.

ciently for a good draft. Another mode is to lay two eight-inch logs or skids, say two feet apart and parallel, filling in the space with small fuel. The Indian fashion is to lay the sticks in a circle, with the butts in the center, resting on one another, making a conical pile. A tree should be felled, the trunk cut into logs, and the branches being chopped up for fuel. In almost all woods are logs, some time cut and seasoned, that furnish dry fuel and kindlings. To peel bark, girdle the tree at intervals of two or more feet and split the sections with an axe longitudinally. In fly time, when the air is still, make the camp fire so that the smoke will blow into the tent or shanty, in order to drive out the flies; but at all times, and especially at night, guard against changes of wind and flying sparks.

To Make Fire from Dry Wood Without Matches.—Get a round spindle of dry hard wood, oak for example, about a foot long and a quarter of an inch in diameter; polish it smooth, and round off one end. Then get a dry piece of some soft pithy wood, elder will do; if over half an inch in diameter split it; if less, shave the wood on one side down to the pith, making a flat surface; make a small bow of any springy wood or root, string it; buckskin is the best string; get your kindling wood all ready for your fire, together with some small dry splinters, grass or leaves, or punk is best of all; hold the soft wood, flat side up, firmly between your knees; take a turn with your bow string about the middle of the hard wood spindle; set the roundest end of the spindle in a little trench you will make in the soft wood or pith; press down with any flat piece of wood held in the left hand, on the other end of the spindle; work the bow back and forth, and the spindle will revolve rapidly. In a little while the dust worn from the soft wood will fill the little trench, smoke, and take fire. If punk is used, this spark will ignite it by bringing them in contact; if grass, as soon as the spark is well developed envelope it in dry grass and wave rapidly back and forth until the fire is well set or breaks into flame. An Indian expert in this method will get fire in about a minute, more or less, as his material happens to be in condition, and will make it nearly as soon using both hands, in place of the bow to revolve the spindle.

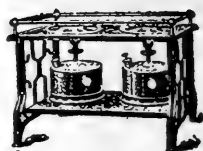
Types of Portable Hunters' or Sportsmen's Camp Stoves.



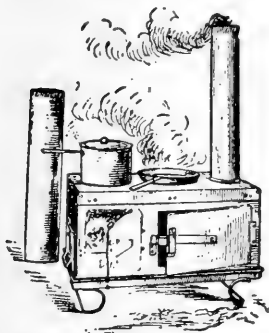
2—Single Burner Oil Stove.



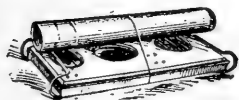
3—Single Burner with 3-Hole Top.



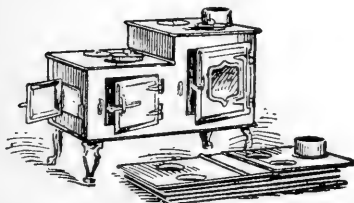
2—Portable 2 Burner Wickless Oil Stove.



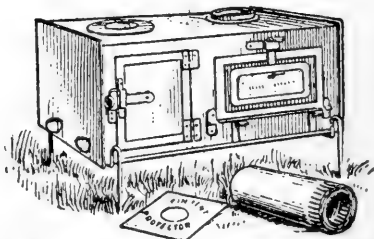
4—Folding Camp Stove Open.



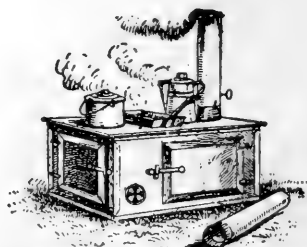
Closed..



6—Another Folding Stove.



Camp Stove (Not Folding)



7—Malleable Campers Range and Tent Heater.



8—Camp Outfits and Mess Kit (Unpacked.)



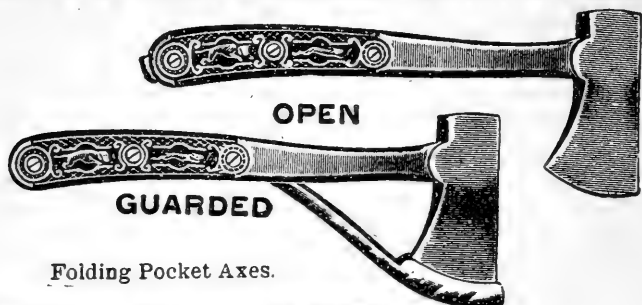
(9—Outfit Packed.)

To clean greasy plates with moss and scour them with sand. To clean knives and forks, simply thrust them two or three times into the ground. At night, tuck your trousers into your woolen socks, and tie them at the ankles. Never sleep with boots on. Use moccasins if you have them. Keep your feet to the fire, but don't let them burn. See that there is a sufficient supply of fuel for the night, and learn to wake at proper intervals to replenish the fire. Early mornings are always cold at any season of the year. A compound of tar and sweet oil applied to the face and hands is the best protection against knats and flies. Buckskin gloves may be worn without discomfort at night. When an A tent is used, a cord drawn through the apex with its ends stretched to convenient trees, supports it better than two crotches and a ridge-pole, and will prevent its being blown down by a gust of wind. The sides should be drawn down tight and fastened to the ground. Never sit up after nine o'clock at night, and rise at daylight in the morning. Never omit a good wash, at least of the face and hands.

Every hunter should know the edible roots, berries, and salad plants of the country he hunts in. The number, especially of edible and wholesome "weeds" which can be boiled as greens, is astonishing. He should also know the herbs from which to make teas for sickness, and poultices and dressings for wounds and bruises. None of the ills which a hunter as such is heir to are beyond the reach of nature's remedies. If he don't know the medicines of the field and forest he should take to camp a few of the simplest of the apothecary's sort.

One great point gained in learning woodcraft is to acquire a habit of close and continued observation. All dense woods look so much alike that the novice without a guide is almost hopeless. In traveling it is important to turn frequently and survey the ground behind, especially if one intends to retrace his steps. A locality looks entirely different from different points of observation. Hence it is always prudent to blaze the route by occasionally scoring a tree or breaking the top of a bush or limb. Where small spruces are frequent, the broken tops of these are most easily seen. In passing through alder brush, cut them well

Sportsmen's & Hunters' Handmade Knives & Pocket Axes.



Folding Pocket Axes.



Camp Carver.



Canoe Knife.



Yacht Knife.



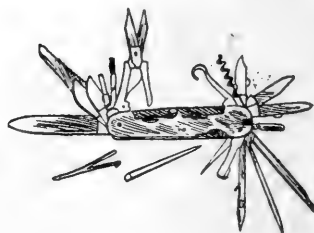
Skinning Knife.



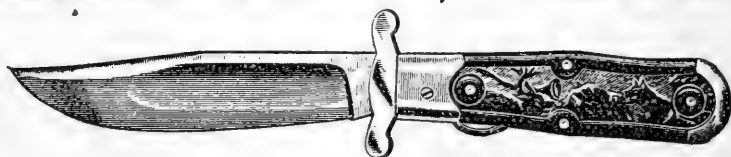
Dalle De Weese Knife.



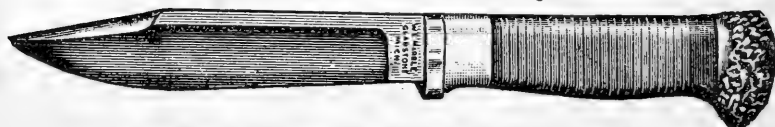
Folding Safety Pocket Knife Closed.



Pocket Tool Knife.



Folding Safety Pocket Knife. Open.



No Better Articles Can be bMade—At Any Price.

down toward the butts with a hatchet, remembering to bend them well over with the left hand, and giving a smart clip on the bend. A greenhorn will be surprised to see how easy it is to cut brush in this way, and how much hacking is required to cut even the smallest sapling in any other way. Alder brush makes a good "blaze," as the under sides of the leaves are much lighter than the upper, and show distinctly. In following a blind trail, the eye should always run casually in advance. If it is cast down directly in front, the sign is lost; but if raised, the trail can usually be traced quite distinctly. In all cases where a man discovers himself lost, he should stop short and carefully consider the situation—the position of the sun, direction of the wind, character of adjacent prominent objects, etc., and then retrace his steps as nearly as possible. It is senseless to plunge headlong into trackless uncertainty, when it may be quite possible to go back on one's own track to the point started from, which, though a loss of time in reaching a desired destination, is better than a loss of way and an involuntary bivouac in the woods. The writer remembers having once tracked back through a laurel brake with such nicety of calculation as to pick up a handkerchief which had been pulled out of his pocket, and was clinging to a bush. As a general thing, a man does not go far off his course before he discovers his mistake. A quarter of a mile in a jungle or a strange forest seems a great distance. It is not impracticable either, when one is in doubt to climb a tall tree and take a survey from the top. Caribou hunters often adopt this practice when looking for barrens where game are likely to be found. Rivers and streams are certain highways to deliverance provided a person has previously some idea of the general lay of the land.

One never should be without a compass; though in some persons animal magnetism is so strong that they determine the cardinal points instinctively. Indeed, there are individuals who cannot sleep with their heads to the south but instantly detect a bed so placed. Backwoodsmen acquire by practice and careful observation a certain craft in reading signs which is almost infallible. As a rule, but not always, moss grows more densely on the north side of trees, nature providing against the cold that comes

Suggestions in Camp Accessories



Hunting Boot.



The Army Shoe.



Hunting Vest



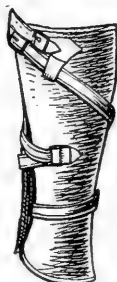
Moose Hide Moccassin Shoe.



The Army Boot.



Mosquito Hat and Netting.
Folding Pocket size.



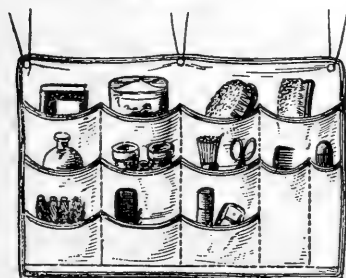
The Puttee Leggings.



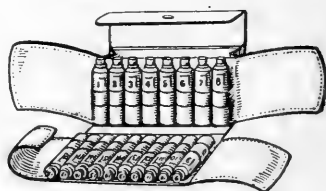
Camper's Leggings.
Tan.



Folding Toilet Case.



Camper's Ditty Bag.



Pocket Medicine Case and Medicines.



The Canvas Bedding Roll-up.

from that quarter. But a more reliable sign is the limbs of trees, which grow longest on the south side, those on the north side being exposed to the wintry blasts which twist, scathe and stunt them. A laurel swamp is the worst conceivable place in which to get lost. The tendency to travel in circles is well known. It is a physiological freak not easily explained. In an article on this subject which we clipped from the Scientific American fifteen years ago, the writer, who is a Texan, says:

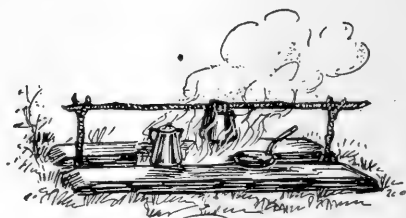
"Bewildered persons frequently travel in a perfect circle, sometimes keeping the same track, until they have made half a dozen equal rounds; at other times making the circle larger or smaller each time. It is not, by any means, always the case, when a person is lost; but it is so frequent that it is within the experience of every one who has been much in the woods. In calm and cloudy weather in a country of much sameness of appearance the best woodsmen get so bewildered as to "take the circles." Persons not accustomed to the woods will sometimes do so, when the sun is shining and a steady breeze blowing. On the level or gulf prairies of this country on a calm, foggy morning, no man can travel without a road. It is an incident of every day occurrence in the spring and fall seasons, that men are thus becalmed on the prairie as effectually as men are at sea; nor will a compass mend the matter, for it cannot be carried steadily enough to keep its meridian, and the course it points cannot be kept for fifty yards; if a man attempts it he will make a circle and come back to the place he started from. The circle will be large or small generally in proportion to the density of the fog—sometimes only a hundred yards in diameter; at other times a mile, but seldom more. The circles thus made are perfect. This kind of wandering seems to arise from an attempt to go a straight course when there is nothing to guide the senses, or when the usual guides of sun, wind, or the general contour of the country are disregarded. It rarely befalls children, who do not attempt to get on a course, but only run from one visible point to another equally perceptible.

"Many apparently trivial traits in the disposition of animals, which are of great use to woodsmen, are omitted in

CAMP COOKERY AND UTENSILS



1



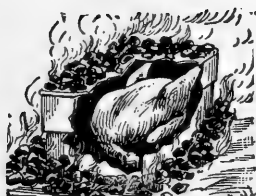
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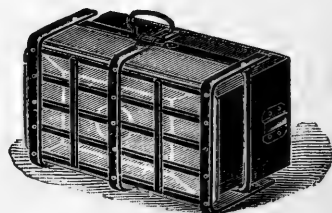
3



4



5



6

3, 4, 5 and 6—The Buzzacott Patent Camp Outfit.
The Kind that Never Fails.

books of natural history; chiefly from ignorance no doubt. One of these is the disposition of the horse, when frightened, to run against the wind, if any is blowing. Thousands of horses which would be otherwise irrecoverably lost annually on this frontier are recovered by observing this simple rule in pursuit. All animals have similar inexplicable traits in their disposition; and men are no exception to the rule. White men, when they are scared, will retreat in the same direction in which they came. The Indians know this, and lay their plans accordingly; and many a gallant company has been cut to pieces simply from ignorance of this fact. But those who understand these matters, when they find it necessary to make a hasty retreat, always do so in a straight line, and in a direction different from the one in which they came.

"We frequently see notices in northern papers of children being lost. Such things rarely occur on this frontier; though children often wander, and there are but few neighbors to help search for them. Perhaps the cause of humanity might be subserved by publishing a few rules to be observed in such searches. Any child will make a track or trail plain enough to be followed by the eye over any ground, unless there be much passing of men or animals to spoil the trail; and it can be followed by almost any person of good sight, although he may not have had any previous experience. Go to the place where the child was last seen and look for the trail, glancing along the ground with a sharp scanning look; when it is found, a faint kind of a line will be seen, which may be followed at a fast walk until a well-defined track occurs. If the trailer stops to look for a track he will probably lose the trail, and must go back and take it up again with the same scanning glance along the ground. The trails which hunters and Indians follow skillfully is not so much composed of tracks or footprints as of indescribable little signs, such as leaves and blades of grass bent or turned, twigs broken, and other things so small and faint that they cannot be shown to any one, yet which, when all put together, make a kind of line along the ground, which line can be seen by a rapid glancing look, but which will disappear when looked at steadily. The trail of a human being is more easily followed than

that of any other creature, because there is a kind of purpose in it different from the trail of irrational animals. A child will change its course around every clump of bushes, and go nearly straight when the ground is open. If it is scared and running, it will run from the wind, if much is blowing, and from any voice it hears; in such cases, therefore, it is not good policy to call much upon the lost child's name."

Hints for Southern Travel

In preparing for a winter's campaign in the south, one should take with him, if practicable, a tent and small boat. If they can be carried. A shotgun, rifle, ammunition, and fishing tackle should be taken from the north. The tent should be as light as possible and so constructed that all the room can be utilized. The boat should be small, flat-bottomed and light. Gun and rifle should be breech-loading, thus securing safety and despatch in loading. Revolvers and big bowie knives are superfluous. Everybody takes them, and everybody finds them in the way. Wear old clothes; half the pleasure in camping out is to be able to rough it. Don't put on fancy costumes, expecting to "make a spread," as no one will appreciate the effort or effect. Wear woolen clothing at all times. For the feet, take good stout shoes, lacing up tightly about the ankle. A pair of tight (not tight fitting) boots may be very good for a short, wet walk, but for an all day's tramp through swamp and pine woods shoes are far superior. Two pairs good woolen, and one rubber blanket. For sleeping in camp in this animated land of fleas, spiders and creeping things so unfortunately taken into the ark, a hammock should be used; one arranged (as it may easily be) with a light canvas roof, with sides of netting. Two or three rafter-shaped triangles hung on a line will spread such a shelter, and in a canvas hammock under it, one can rest free from the companionship of the guides and dogs, and without vivid ideas of snakes and centipedes. High boots will be some defense, but keep away from the vicinity of domestic animals, and sleep not in any of the "cracker" houses, but camp in remote pine woods and keep the dogs away from the tent. Such forest is comparatively free from

mosquitoes, and in mid-winter the sand flies are not very annoying. A mosquito bar is indispensable, as many nights the tormenting insects call their own.

Shelter

In camp we are supposed, a greater portion of the time, to enjoy all of the hygienic effects of out-door life: still, it is quite necessary that we provide ourselves with protection sufficient to shield us from sudden atmospheric changes and inclement weather.

The common army tent is well adapted to this purpose, and may be sufficiently long to accommodate two, four or six men.

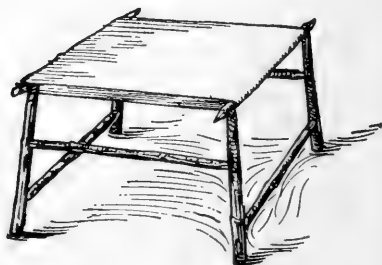
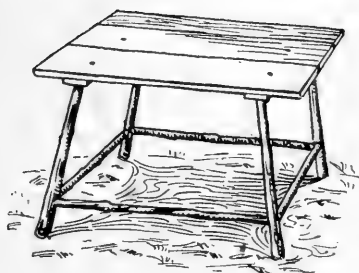
In selecting a location to pitch the tent, when possible, an open space should be found, where there are no trees or bushes within a few rods. In the dense woods, beneath large trees, the ground is much more damp, and the atmosphere contains more moisture than it does in the parks or open spaces. A tent standing beneath a large pine tree will, in a few days, become saturated with moisture, and the bedding will show unpleasant symptoms of dampness and mould. Have the tent placed on dry ground, in an open space, and surrounded with a ditch four or five inches deep. The tent may be used to sleep in when the weather is bad, but if fine take to the open—instead of the cover.

Accustom yourself to sleeping in the open air, then when it gets bitter cold, shelter of a tent or cabin will find you hardened and fit. I have known men to sleep out in the open nearly all winter; don't forget the fact. Men were campers before they were house-dwellers; but, hemmed in by brick, stone or wooden walls for generations past, their hand has forgotten its cunning in the matter of out-door home-making. Now, when they would dwell in tents, in brush houses or the open even for a time, they must unlearn that which their fathers have taught them and **learn that which their forefathers knew.** They must learn to deny themselves many of the luxuries of so-called civilized life, and to enjoy in their stead simpler conveniences and com-

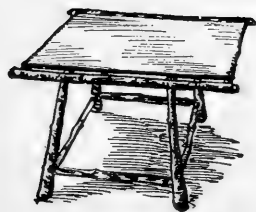
forts, such as may be easily transported, or may be gleaned from the wilderness wherein the camp is to be pitched.

Even in the polar regions or extreme northern Spitzbergen I have slept without a tent, using only a hooded sleeping bag—**reserving the tent for storms and driving snow**, or when storm-bound—that's the time tents are a necessity and a blessing, but when one has plenty of sleeping equipment I say take to the open and stay there all you can.

CAMP TABLES—HOW TO MAKE THEM



Boards, Boxes. Canvas and Wood.



GOOD BEDDING

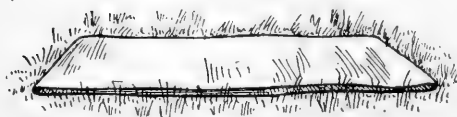
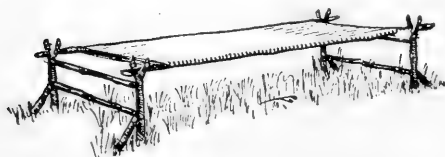
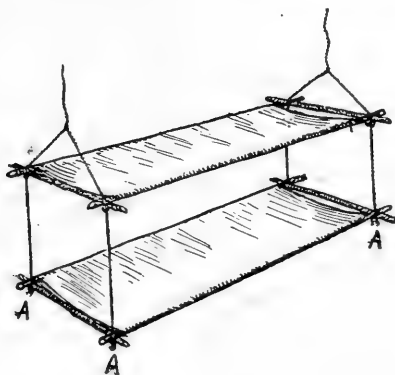
Too much care can not be given to the subject of bedding. It is the most important part of a camp outfit; and yet there are hundreds of sportsmen who do not appreciate this fact. Besides, they like to affect the ways of the native, and show their companions that they can rough it in true aboriginal style. This is all well enough in spirit, and, if you go into the woods or mountains on a long jaunt, you will have plenty of opportunities to show your mettle in more worthy and less injurious ways than by sleeping on the hard ground with insufficient bedding.

As I have before had occasion to say, I would rather get into a good, warm, dry, soft bed at night, without my supper, than sit at a feast, and then sleep on the hard ground, without covering enough to keep me warm. After a hard day's work, tramping, rowing, or whatever it may be, a good bed is absolutely necessary to prepare one for the labor and fatigue of the following day. Any able-bodied man may endure a few nights of cold, comfortless sleep, but it will tell on him sooner or later; while, if he sleep soundly, and eat heartily, he may endure an incredible amount of labor, and hardship of other kinds. You may tramp all day with your feet wet, all your clothing wet, if need be, without injury to yourself, but be sure you crawl into a good, warm, soft, dry bed at night. Your old-timer, white or red, who takes one blanket, his rifle, a bag of crackers, and a little salt, goes into the woods or mountains and subsists for days, weeks, or months on nature's resources, is proverbially a short-lived man. He looks and feels older than he is; his age is racked with rheumatic pains, and he dies twenty years sooner than he would have done had he taken care of himself.

Blankets are the staple article of camp-bedding, and you should never go into camp with less than two pairs of good heavy ones to each man, no matter where you go or at what time of year. If you go late in the fall, take three pairs; if in the winter, increase the number to four, or take a sleeping bag.

COMPLETE TRAPPERS GUIDE

CAMP BEDS—HOW TO MAKE THEM



Simple Devices Made in Camp.

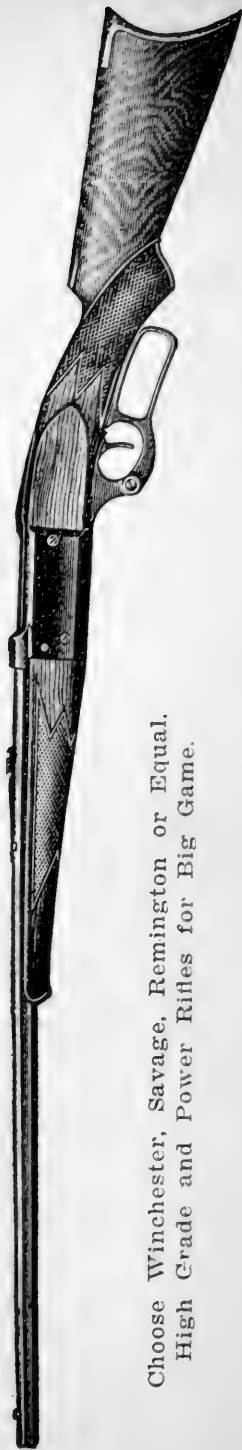
The Sleeping Bag Ideal

But the boss camp-bed for all times and all climes, after all tramps and all climbs, especially if you are to sleep alone, is a sleeping bag. I have used one of these for many years, in all my outings, and have learned to prize it so highly that I would as soon think of going to the north woods without my rifle or rod as without my sleeping bag.

If the country on the coast be visited the "bag" should be made of thin cotton or lawn, to keep out the "sand flies," insects so small as hardly to be discernible, but with a bite like the burn of a hot iron. It would be well to take a little salve and thin plaster for cuts and bruises. In the line of medicine one can take a whole apothecary's shop, if so disposed, but, excepting a little whiskey and quinine, the former for snake bites, which hardly ever occur, and the latter for imaginary fever, no medicine will be needed. For light at night, a lantern and candles will be sufficient, though kerosene, where little transportation is to be made, is preferable. The keen bracing air gives more pungency to a haunch of venison or brace of quail than all the sauces piquante ever concocted. A bunch of Spanish moss is infinitely superior to a napkin, and the clear waters of some spring to the finger-bowl. And here a word as to water.

Nearly all water is impregnated more or less with lime or some mineral or salt that gives it a "flat" taste to the uninitiated, and a drink of raw, unadulterated water is not always acceptable. Some people "qualify" it—indeed the majority of settlers "qualify" it so much that the original taste of the aqua is lost in that of the qualifier. That is all—a word to the wise. We advise a plain mode of living. Take hard bread, "self-raising flour," pork, salt, potatoes, brown sugar, rice or hominy. "Buzzacott's" condensed milk and coffee, a little jelly, butter, pepper and mustard. Fish and game birds may be on the bill of fare every day, but again they may not. No one should start down the river dependng upon a supply, as the game is regulated and controlled by a multitude of laws that the visitor knows nothing about. Preserved fruits, meats, etc., are not

TRAPPERS FAVORITE RIFLES



Choose Winchester, Savage, Remington or Equal.
High Grade and Power Rifles for Big Game.

necessary, though sometimes found acceptable—they don't stay in camp long. Regarding cooking utensils, if cooking is to be done in the usual way, over an open fire, there should be a "bake-kettle" or oven, a foot in diameter; frying-pan, same dimensions, with a long handle; tin plates, plated knives and forks, pint tea-cups, iron or tin spoons, and butcher knife. A regular camp kit is preferable, however. If a stove is preferred, go to the tinsmith's and have him make a sheet-iron box two feet long, one broad, open at one end. The door a sheet of iron, to slide in a groove, perpendicularly, acting as draught regulator. The legs should be flat, fastened to the box by hinges, shutting under it when packed. The pipe small and in joints, to be packed in the stove. A piece of tin should be taken to fasten to the tent to run the pipe through. With such a stove, well supplied with "light wood" or pitch pine, a fire can be sustained that will vacate the tent in short measure.

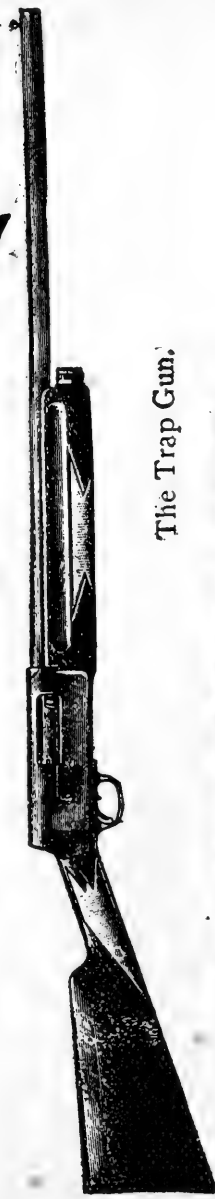
Rocky Mountain Travel

Special preparation is required for travel in the Rocky Mountains. Before entering the mountains one should prepare himself and party for the country they are about to visit, for if their outfit is not carefully selected what might have been a summer's pleasure will very likely be one of toil and regret. Take nothing but what is absolutely needed, and what is taken let it be as light as possible, as every extra pound lacerates the back of the pack mule. Use medium sized animals for packing, as they will carry as heavy a pack as a larger animal in rough places, and are more to be relied upon where there are steep ascents to be made or fallen timber to be crossed. Two hundred pounds is enough for a single pack mule to carry at once, but some persons will overload their animals to save buying an extra mule, and will not see their folly until they have lost some of their best animals by rolling down hillsides against the rocks, or by having them "snagged" in fallen timber. When returning at the end of the season, if the animals' backs are sound and good from the effects of light loading, they will command a good price, and are easily disposed

The New 5 Shot Automatic Shot Gun (12 Gauge)



As a "Take Down."



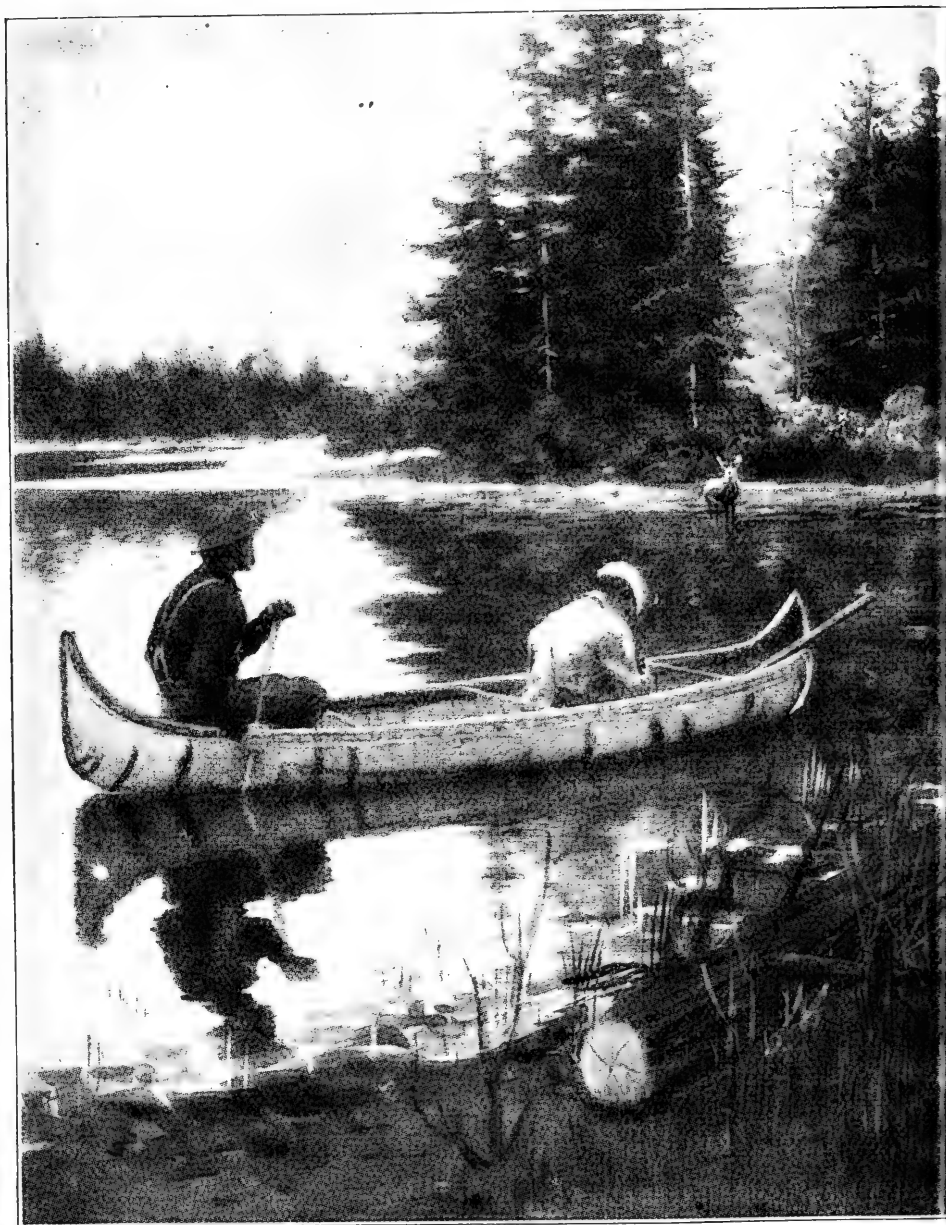
The Trap Gun.



The "Messenger" Gun.

of; but if, on the contrary, their backs are covered with sores, they will only bring one-half their original value, so men may easily see the economy of having a sufficient number of animals to carry their luggage.

For riding animals use mules for the mountains and horses for the "plains." A good mule will follow a trail and take its rider into camp the darkest night that ever was. Should you get strayed away from camp and not be able to find your way back again, drop the bridle rein on the horn of your saddle and trust to the instinct of your mule, and if it is not very hungry, after wandering about a short time, it will take a direct course for camp, although the rider may think camp is in an opposite direction from the one where the mule is taking him. The common Indian pony or broncho is the best horse to use on the plains, as they are tough, quick and thoroughly acclimated to cold weather and the poor feed that is to be had in most places. Select an easy saddle with a good California tree, a light pair of spurs, and a broad hair Cincho bridle with a light curb bit, a good saddle blanket, a small pair of saddle bags, and your riding outfit is complete, unless you ride a mule, and in such a case a good strong broad crouper is necessary, so it will not cut the tail of your riding animal. When traveling do not hurry your horse, or do not allow him to become lazy; keep him at a steady gait, and if necessary, he will accomplish a long distance daily; but should you become impatient and lope him nearly all day, he will become poor, stubborn and lazy. Use the Spanish aparejo instead of the pack saddle, as it is easier packed and more comfortable for the animal wearing it. Select heavy lash ropes, or they will stretch, and the animals will have to be repacked a dozen times a day, particularly after a rain, when the ropes have been wet and are gradually drying by the heat of the sun. Have a long "lariat" for each animal, for in some places in a timbered country it will be necessary to picket them over night, for if they were turned loose they would stray through the woods in search of better feed, and it would be a severe task to collect them together again. Put a cow bell on the neck of the gentlest mare, and the whole herd will become attached to the animal wearing the bell; and when traveling let the "Bell mare"



A Study in Animal Life and Ways.

take the lead, and the other animals will follow in single file where it would be impossible to drive them. The cooking utensils should be several camp kettles made of copper and lined with tin (made to fit in each other so they may be more easily packed), a small Dutch oven, spade, axe, hatchet, coffee mill, knives, forks, spoons, tin plates and cups, a bread pan, frying pan, gridiron, whetstone, and two small iron bars to lay over the fire to set kettles on when cooking.

The bedding for each person should consist of four California blankets, a small pillow, a rubber poncho, buffalo robe, and half a wagon cover of canvas to cover the whole bed and protect it from the rains. If tents are used, the small dog tent is the best, and will be found very useful as a wrapper to roll the bedding in for packing. For hunting large game, select either Winchester, Savage or Remington rifle or equal. There should always be one good double-barreled shotgun in a party for the smaller game, and thus provided for, there is always an abundance of fresh meat to be had, which is a great addition and saving to the table. When a party is preparing to camp out it is a good plan to establish a depot camp for a few days near some town (where there is good water and wood), while fitting out, and become accustomed to camp life before striking out for the more wild portions of the country. The experience thus gained proves a good guide for future operations. When starting out for a distant point, do not travel too far the first few days, but make short marches until the animals' backs become hardened to the arrapahoe. Do not allow the arrapahoe or pack to become loose, but have them as tight as two men can draw them. A mule may grunt a little about being laced so tightly, but it is much better for them than to have a pack rocking from side to side, backward and forward, thus bruising the mule's back, and ending in sores and a worthless animal. In the saddle bags always carry a pound or two of good, solid, square crackers, "hard tack," if need be, soda crackers, if obtainable at the last little village through which he passes, and in his coat pocket, securely wrapped, an ounce of salt and a half ounce of ground pepper. Properly packed, the crackers need take but little room, and the man is to be pitied,

no matter how fashionable his stomach, who cannot, after a good day's ride, make a satisfactory, and certainly digestible, supper off the crackers crumbed in the good sweet-milk he is sure to find at any settler's cabin, especially when duly seasoned with the salt and pepper he carries with him. Persons of limited or no experience in the West may smile at the suggestion that salt and pepper be carried along; but the writer has found many families, rich in acres and herds, who were "just out of salt," and to whom pepper had been so long absent that it was a cool friend. And many a palatable supper and breakfast has he made off crackers and milk with pepper in it, duly salted, when, had want of foresight confined him to the "corn dodger," made all too "short" with lard, and the bacon swimming in its native grease, which served the more rugged stomach of his host, he would but weakly have bestridden his mustang for the next day's ride.

Guard against the "mountain fever," which is a severe cold peculiar to the Rocky Mountains, caused by exposure and over-exertion. Its symptoms are flushes, fever, cold in the head, headaches and general debility. It reduces a cast-iron mountain man to a weak and helpless infant in a few days. It in no respect resembles the fever and ague or the fever prevalent to the Southern States.

To prevent snow-blindness, smear the nose and the parts of the face around the eyes with damp gunpowder. Those who travel to the mountains by railroad should get a canteen at Omaha and fill it with milk, and suspend it on the outside of the car window by means of a stick (laid cross-wise) and a string. It will keep sweet until you wish to replenish. By this means you avoid the alkali water which is injurious, especially to children. Hang your lunch basket in the same way, and you can keep roast turkey, chicken, game, meat, etc., the entire distance. You want two or more coffee cups with handles, as you do not always feel like eating breakfast at the stations, and ten cents worth of coffee procured at the counter will suffice in aiding the lunch basket.

INTELLIGENCE OF ANIMALS

Another thing I desire to call attention to is the fact that the intelligence of Wild Animals is, in many instances, of much deeper extent than we actually realize. And from a Wild Animal standpoint their powers of discernment and discrimination are far greater than ordinarily we imagine or infer them to be, simply because we don't understand them or their ways as we should, or as they do ours. Take the dog or cat as an instance; I will put it to you this way. I claim that they can even feel or perceive knowledge of your absence or presence within or about their vicinity when you are not actually seen by them, and that they can even, by familiarity with certain of your habits, anticipate the time of your departure or arrival home, in a way, especially if your habits are regular, for then do they anticipate not only your actions but your intent as well, and in your conversation with others in their presence they can tell whether or not they are talked about, whether your remarks are made in jest or earnest, and capable of judging even if you're angry or good-natured; whether you mean what you say or not, and other things of a surprising nature; in fact, I want to give you a few startling incidences in support of these claims before going further.

The reader will notice, as a rule, that in starting out on these subjects I prefer to give you a few facts as to domestic animals, dogs, cats, etc., simply because you are more familiar with these kind than with the Wild Animals, of which I shall later more fully speak. Were I to jump right in and mention incidents in connection with unfamiliar Wild Animal life you would be prone to doubt the truth of my story, and before I am through with this subject I believe I shall have convinced you that in a matter of intelligence and reasoning powers, in their own way, Wild Animal life simply have the domestic kind "skinned a mile."

But to return to our subject; how many of you are there who possess an intelligent dog or cat, and who have noticed that oftentimes when you call them to you that they fail to respond, yet showed every evidence of hearing and understanding you both; perhaps looking at you, even wag-

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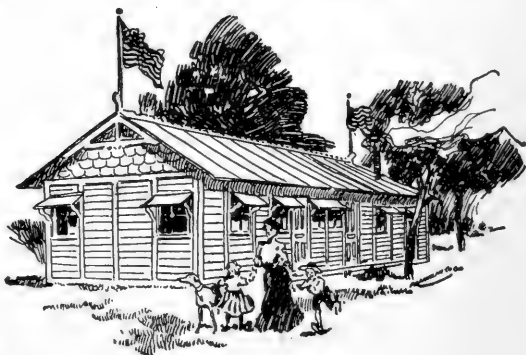
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Portable Hunters Cabin
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Style 2

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Cottage,
Sportsmens Club
Headquarters
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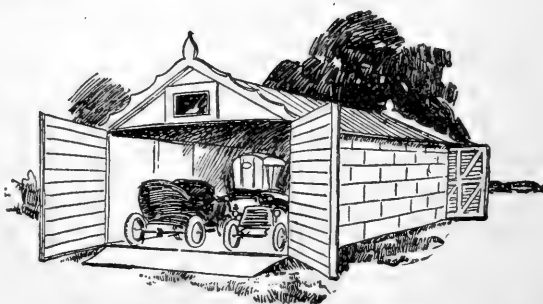


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ging the tail in a listless-like manner, but yet not heeding your call in any way. The dog, for instance, sometimes when lying down and is called will deliberately look at you and yawn, and flop his tail on the floor or ground where he lays, but yet not move to obey your call, although he certainly heard and understood you both. The cat, at times, will look at a person the same way, and seemingly refuse to respond; nearly every owner of such pets have noticed such things perhaps time and time again, but who are there who can explain why these things sometimes often occur, while at other times they respond like a flash? Lots of people, when they observe these things, think that they are acting fool-like, and don't know, but you make a great mistake when you attribute to them ignorance of this kind. Perhaps you never thought of this before, that I am going to tell you now, and it may surprise you or seem almost incredible to learn that the animal, be it dog or cat, honestly was able to judge of the **genuineness of your call, and its intent, as it applied to them**; that is, to say they knew whether they were honestly wanted or not. Suppose, for instance, you call your cat or dog to pet it, or simply for it to go out when it really did not want to, and it was coiled up comfortably on the mat or rug for a nap, or you called it even to give it some food when it wasn't hungry; the chances are ten to one, while it heard the call, it would refuse to answer, although it would show every evidence that it understood or recognized what the call meant. You might be in the next room—still it would refuse to answer for the same reason exactly.

The reason of this is largely because your want does not coincide with those of the animal's; if it did the chances are it would respond like a flash the moment the call was given, and if others prevented it from coming to you, even it would struggle in order to obey the call. Why is it thus? Simply because the animal has intelligence enough to discriminate between your actual calls and decipher the meaning ones from the other kind; or, in other words, it can tell by the sound and depth of your intent or true meaning whether it was a call which meant advantage or the possibility of favor, **or receiving something from you**.

You might, for instance, try and call it for ten minutes,

and it failed to respond, and even if you pretend to want to give it something by handing it "nothing," as the saying is, it could judge by the sound the true extent of its meaning; in short, it seems to recognize your want, and that when it applies to yourself and don't benefit them they are apt to fail to respond.

While, on the other hand, if your want is earnest or genuine, or bespeaks something for them, which they desire, like a flash they would come to you in the nine cases out of ten mentioned.

So much for their powers of discrimination as to the deliberate meaning and intent, as the lawyer says, and so much for the further discriminating intelligence of animals, I say.

Now, how many of you are there who will agree with me that an intelligent dog (there are other kinds, of course) recognizes whether his master or mistress is in good or bad humor, angry, cross, vexed, ill-natured or happy and good-natured like? If the former, sometimes they will avoid you, or approach you sympathetic like, as if to condole with you; if the latter, he will act as if he would like to share your company or good nature. And right here I want to be understood as one who claims that intelligent dogs honestly recognize and anticipate your moods and feelings, and are ready to either avoid you or share them with you, as the case may be, and that they can honestly discriminate between the good, bad and indifferent in these things.

Neither will I rest here, for I want to say further, that your dog can even recognize the foot-fall or steps of its master from its missus, just as it can recognize the foot-fall step of an old friend or family acquaintance from a stranger by the sound alone, and that it's a dumb dog that cannot discriminate between these things long before he has seen the person even, so acute is their hearing and their powers of observation or recognition of sound.

I will go even further than this, and say that your dog is a good judge of human nature, in a measure, perhaps, that you had never thought of before. It has often been said that children somehow are great judges of this, and that they show certain antipathy to certain people, whose

inner disposition are ill-natured, or cruel like. And yet who show no external signs of such disposition, and it has often been remarked as instinctive that they shrink from such persons, while on the other hand people of pleasant, kind disposition they are only too prone to make friendly with, child-like, too, and that sometimes we note that this certain antipathy is very marked and ominous, yet often will be found like the child's judgment, correct in the end. Hence, I say, beware of the friend whom your children or your intelligent dog don't seem to take to, for, as you term it, some "unaccountable reason." In two cases out of three you can rely on the meaning being nearer and deeper than you have before accredited to them.

It is indeed a true saying that mankind is often found in company that his dog disdains or refuses to become party to, and in many cases you will find their judgment equal, if not better, than your own.

Let a man be lost in the woods, plain, mountain or wilds; if he has an intelligent, dog, pony, horse or mule and will only trust to the better intelligence of the critter, under the circumstances, he can be pretty sure it will lead him out to safety again. I've done it perhaps a dozen times, and could cite a hundred other instances were it necessary, but is it? The whole trouble is we are so put up or stuck-up as to our own boasted intelligence and ability that we do not stop to think or allow to animals what is really due to them, as far as their intelligence or judgment goes. We are wrong to judge their standard by ours, because there is an abyss or chasm or difference between it. There is no comparison—no indeed; but in our own selfish bigotted way we are prone to belittle the real intelligence of animals, because it is different from ours, and so little understood by us. Some time we will learn and perceive more of their way, understandings and intelligences, and see things their way; then it will appear much different to us than now.

Unfortunately, we have been too much occupied with our own knowledge to pay such attention to theirs as we ought, but the time is coming when we will understand them, perhaps equally as well as they understand us now. That's why I write this volume, as I may be able in a

way, at least, to educate my readers up to what the true standard of animal intelligence means, for we have much to learn from them and their ways, as they have learned from us.

We have not yet awakened to many startling facts as to the powers, scope, depth or value of such things, because we have been too much engrossed with our own observations and intent to take the time to fathom theirs, and I have yet some surprises in store for you, as I go along.

While writing of these things, I will also call attention to the fact that animals generally are **the reverse of mankind**, look backward instead of forward, or to the past instead of the future life. Their like is made up of memory of the past, instead of coming events; with them it is a case of way-back, yesterday and today, rather than tomorrow or years hence, **as with us**. Their mind and memory is all associated with past events—the happenings of long ago is avoided today with them, while past things, places and events are remembered that in us would be long forgotten.



POWER OF SCENT OR SMELL

Again, they seldom forget what we are always apt to. Take their sense of smell, sight and hearing; by these very powers do they perceive differences, recognize and memorize things that seem incredible to us, or are in a way lost, as far as we are concerned, and leaving out the question of sight entirely, on which we depend, in their own elements, they have us decidedly at a disadvantage as far as perceptive intelligence is concerned.

Take, for instance, an intelligent animal of any kind; I venture the assertion that either might be coiled up, resting or sleeping, apparently oblivious to everything, yet the fact is, despite appearances to the contrary, they are aware of everything going on in the vicinity where they belong. With eyes shut, or with one open, they can tell by the sound who goes and comes, be it friend or stranger; if it is an intelligent dog, your habits and customs are memorized far better than you can even think or surmise, and if your habits are in any way regular, you would, if the matter was brought fully to your attention, be amazed at their powers of conception and anticipation of them; even the butcher or grocery wagon driving up to the house is recognized, looked, waited and expected, just as do you anticipate such occurrences. The child going to the store, and the package which comes to the house, arouses their interest, on certain occasions, with marked intelligence, if you will only stop to think over it. Plenty of times your dog or cat will run to the door to meet a grocery or butcher boy in a friendly way of anticipation and delight, but whoever heard or saw a cat or a dog run to meet a strange peddler, **except to greet him with the other kind of a reception.**

An intelligent dog will smell a tramp before he opens the gate, and will rush at him with open mouth perhaps, but a strange child or little girl he will often welcome with a wag or whine of pleasure. Why all this? If it is not because of past memory and associated ideas of such things and occurrences. A strange child or baby might pull or cuff a vicious cur or bull-dog to its little heart's content, and in two cases out of three be suffered to go on with-

out a growl even, or the dog would retire out of reach and room, but let a strange boy or man try the same game and he will be apt to lose a mouthful of flesh; memory, association of past ideas again, which is forever uppermost in animal intelligence.

Let the master of a good hunting dog dress up to the business event and his dog will be found to watch him indifferently, but let him, on the other hand, bring down his hunting togs or kit and see the difference, for the hitherto mentioned indifferent brute, as we term it, becomes an animated bunch of anticipated nervous delight; so much for memories and ideas of the past again.

On the other hand, take out a good dog for his daily walk, hunt or exercise, and watch closely his actions; at every turn of the road he will be found anticipating which way you will turn or travel, all the time really trying to fathom reason, anticipate or study out your ultimate destination, if in the least doubtful; if not doubtful, he will take you there, for once he seems to know or identify where you are going he will often bark as though to tell you to your face, "I know," "I know," "come on," "I know."

Again, who are there of you who have noticed how even dogs will try to deliberately coax their masters, or those who accompany them, to go certain ways, barking and leaping up trying to coax you to go **another direction**, or way to which you are going, as if to say, "please come this way, it's so much better." Indeed, if some hunters would only follow their dogs, instead of forcing the dog to follow them when in the game fields, there would be less long tramps and light bags as a result. No wonder they look up at us reproachful like, disappointed at our acts, or discouraged even; indeed, I have more than once observed the crest fallen, sulky mood, as much as to say in dog language, "it's no use trying, I just can't make you understand."

Indeed, the owner of a good hunting dog, on such trips, can well afford to test and rely on his animal's superior judgment in lots of ways in preference to his own. Years of hunting and trapping experiences has proven these facts, time and time again, only to be too true. It is poor policy to "heel back" a good experienced dog; downright foolishness I call it; by far the best plan would be to trust to

their judgment, under many circumstances, if not all. Inasmuch as we in the face of all evidence admit it, cannot deny that animals are generally capable of exercising what we would term "reasonable judgment."

These long drawn out articles on the lack of intelligence of the wild animal species, which certain writers seem to harp on, in my opinion shows a decided lack of common sense on their part, and certainly indicates that their knowledge has been drawn from observations of either wild animals in captivity, the domestic ones, or those so-called "wild ones" which, for generations past, has perhaps hugged the borders of civilization and become more or less adapted to the changed conditions of the environment which surround them, or their haunts, rather than those of the true wild animals which inhabit still further remote or distant districts, and who vary in difference as to animal life, much as a savage does to the semi-civilized race.

Indeed, some of their theories prove unnaturalistic tendencies, rather than otherwise, and as the reader will follow me through this work he will find where in many instances do I, a plain hunter and trapper, upset many of their favorite ideas; whether correctly or not, I leave to the reader or observer, who must bear in mind that my remarks apply mostly to animals in their wildest state. Such as I have hunted and trapped, snared, shot and dead-falled for forty years past, as well as those observed by my father and fore-fathers before me, not one of us ever having trade or profession or calling in other lines.

Of an observing nature, we have, as a rule, always tried to verify things before making decisions, and to consult others with whom we have been intimate and who have had experience in such things. Again, I have largely drawn from observations with Indians and natives of the tribes I have lived amongst, be they Alaskan, Canadian, American or Esquimaux, and while it is true that many of these have peculiar ideas (erroneous ones), superstitions and beliefs, ranging from the sublime to the ridiculous, yet in no instance do I give their theories without verification, and while in a few cases I might interpret them incorrectly, yet in the majority you will find I am right, and you may rest assured that in no case do I aim to exaggerate or give opinions as facts.

The whole trouble is too many seem to think that animals generally, or the habits of a few as noted, are the habits of all. Nothing is more inaccurate, even of those of the same specie differ largely in their ways, habits and peculiarities, according to conditions. One will do such a thing this way, and the next fellow differently; as I said before, conditions always governing. Let me give you a few instances of this. Take, for instance, the weasel family; they do not always kill anything of life peculiar to them, which they find about them—not by a long shot; there are times when they will and won't. I have seen them go into burroughs and rob them of tid-bits, but never touch the occupants, or chase them even when they ran out. I have seen them rout out birds from their nests, and only disturb eggs, and at other times pass up game that they could easily have captured and killed, had they so desired. They have their robbing expeditions, as well as their killing ones, and are not living and constantly practicing extermination, such as we are made loth to believe, especially so when in their own territory. True, there are times when they go outside the certain territorial limits, such as their own, when they indulge in this killing mania for a while, especially in seasons of scarcity or want (winter time). In a way, too, their lives and ways are dissimilar; they have their varied likes and dislikes in all things, as well as their peculiar methods of approach to any quarry that they seek. Take, for instance, any of the weasel family; if you watch them closely on their hunting trips we will see quite a difference in their methods. One using tactics decidedly different than the other; on the whole, however, we can observe that at first sight of an animal they seem to be particularly observant as to whether or not the creature is one whom they have met before, and peculiar as it seems, also to learn if it is a male or a female, and if the former, they get busy after the meat without any preliminaries; but if in the latter case it is a female, they will often lay close and watch her for a long time, and follow her, seemingly in the hopes of discovering her covert, lair, nest or den, for reasons that are obvious, of course.

In the same way, when hunting birds in the nesting time, they will watch old birds deliberately—females especially,

in the hopes of locating the family nest, trailing after them, watching them carefully, seeming to give far more thought to remaining unobserved and following, rather than in closing in or attempting to attack.

The same rule applies to other animals of a carnivorous nature; they seem to first seek out or identify the sex and kind of the animal observed, in a way. When this is first settled, they follow or attack, seemingly according to set plans, and rarely in the haphazard catch-as-catch-can fashion that a great many people seem to think.

In fact, I have observed the times and in season, when hunting in pairs, that neither will attack the female, both seeming to unite in driving her off or in confusing her, separating her from her young, or from her mate, as much as possible, and if, as stated, two of them are together in the attacking party, they act as if it were deliberately planned, premeditated and carried out accordingly.

In their likes and dislikes of certain kind of food, they are dissimilar—one preferring flesh to fowl, or vice versa—some tackling anything, and others seem to be epicurean or dainty in their tastes; still more who show a preference to a putrid carcass, and another refusing such a feed, and right here I wish to say that, as a rule, the stench of such foods seems not to be objectionable to all animal life, as it is with us. This I attribute largely to the fact that while the smell is a putrid one, yet it is natural, and they actually seem to be more disgusted with any odor which comes to them which is strange or foreign, or unnatural like. We observe the same thing in savages and Indians—putrid or partially rotten meat does not offend delicacy of either taste or smell—it comes natural like, because they're used to it, and of the fresher and sweeter meats they get tired of and welcome the change. Now, on the other hand, anything strange, as, for instance, some of our savory dishes seems to have not only a disgusting smell, but taste as well, simply because it is something new, and tastes foreign to them and smells unnatural.

This is largely responsible for the fact which we see of Indians choosing some of these vile feasts, such as the paunch of the reindeer, dog meat and insects, such as the locust, which appears so objectionable to us; and I venture

to say that if we lived as do they, with little or no variety in their foods, that any change almost would be hailed with satisfaction. Take, for instance, in the polar regions, one of the chief delicacies there is the green undigested food found in the stomach of the reindeer. This, taken with certain portions of the flesh, is regarded as tid-bits, and with seal or bear's blubber or fat is prepared into a stew and eaten with a relish or gusto akin to no other dish in the Esquimaux dietary. The reason is plain and simple. It is their only possibility of getting any green stuff, as a relief from the monotonous fish diet or that of flesh, which becomes tiresome in time, naturally, and the polar regions



Warner and Swasy Telescopes. High Power Binocular.

being devoid of vegetation, especially in the winter time, it is easy to see that such vegetation, strong and obnoxious though it may seem to us, is hailed very much in the way that we like our mess of spring or winter greens. If I may cite such as a comparison. We observe the same thing in animal life. We see birds, for instance, who pick out the eyes and softer portions of a body or carcass which they find; still more who first seek to glut themselves upon the entrails, tongue, heart and liver; others who prefer the more solid or tender flesh, each nevertheless exercising a choice of parts peculiar to them. We see the same thing when their dietary consists largely of fish; some of them eating the heads and shoulders, others the entrails, and in a majority

of cases all of them leaving the tail, as if that part was useless. Again some preferring the head, and leaving other portions of the body untouched. Again, we notice some who vary their diet largely, consuming berries, mice, frogs, fish, insects, eggs and green foods, and showing decided preference of one over the other, in season and out. And, again, those who want meat straight and more of it, refusing other varieties. All in all, then, it is wrong for us to judge one by the other, for there is a large difference



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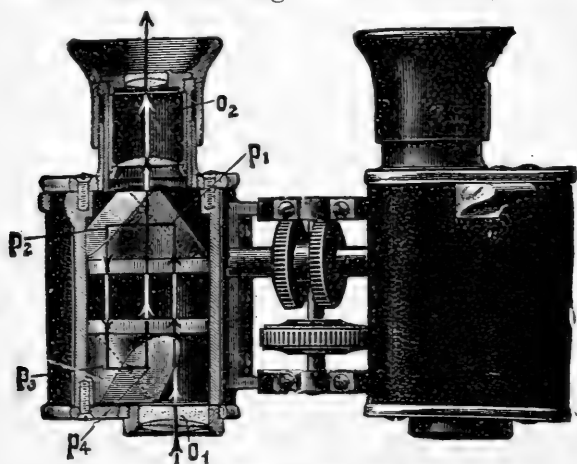
between them, and to judge one by the same standard as another, even of the same species, is a serious error.

I am well aware that some writers attribute the habits of one as similar to another, just as they do deny to them ordinary sense, reasoning powers, fore or after thought, and on the next page of their writings cite an instance of extraordinary intelligence that completely upsets and at variance with their former remarks or statements. One will argue that a certain specie will climb a tree—still another

that it does not, forgetting absolutely that conditions, habit and environment plays an important part in all these things.

One will say that the beaver, for instance, shows an intelligence akin to the human, in cutting down trees, building dams, houses and overflows: the other quotes it simply as an act of an automaton and not intelligence, and still more who claim that despite all facts claimed for it the beavers have not even got sense enough to cut down trees so that they will always fall the right way.

Could anything be more absurd? True, perhaps, the tree cut down did fall the wrong way, away from the stream, instead of across it, for instance, or perhaps fell against another tree instead of falling free and clear; even admitting



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all this, it is certainly not proof of lack of beaver intelligence (while it may be of human kind).

In this case that beaver intelligence was limited to cutting the tree down in the surest, quickest, easiest and safest way. Why should it reason as to the best way for it to fall, any more than it should that its lumber had a market value? We surely should not expect that it had human intelligence, and call it "foolish" because it had not, for, come to think of it, I have seen city educated folk, with a sharp axe even, use decidedly less or worse head work cutting down a sapling than did that very beaver in cutting

down a tree. Hence, I say that the one who likens animal sense, or intelligence, to that of the human kind is but a FOOL. Right here I wish to say the beavers as a rule in their work are guided largely by circumstances; their cutting of trees is confined to the easiest, quickest way; time is no factor in their life as with us, and accomplishment of their objects is always what is aimed at.

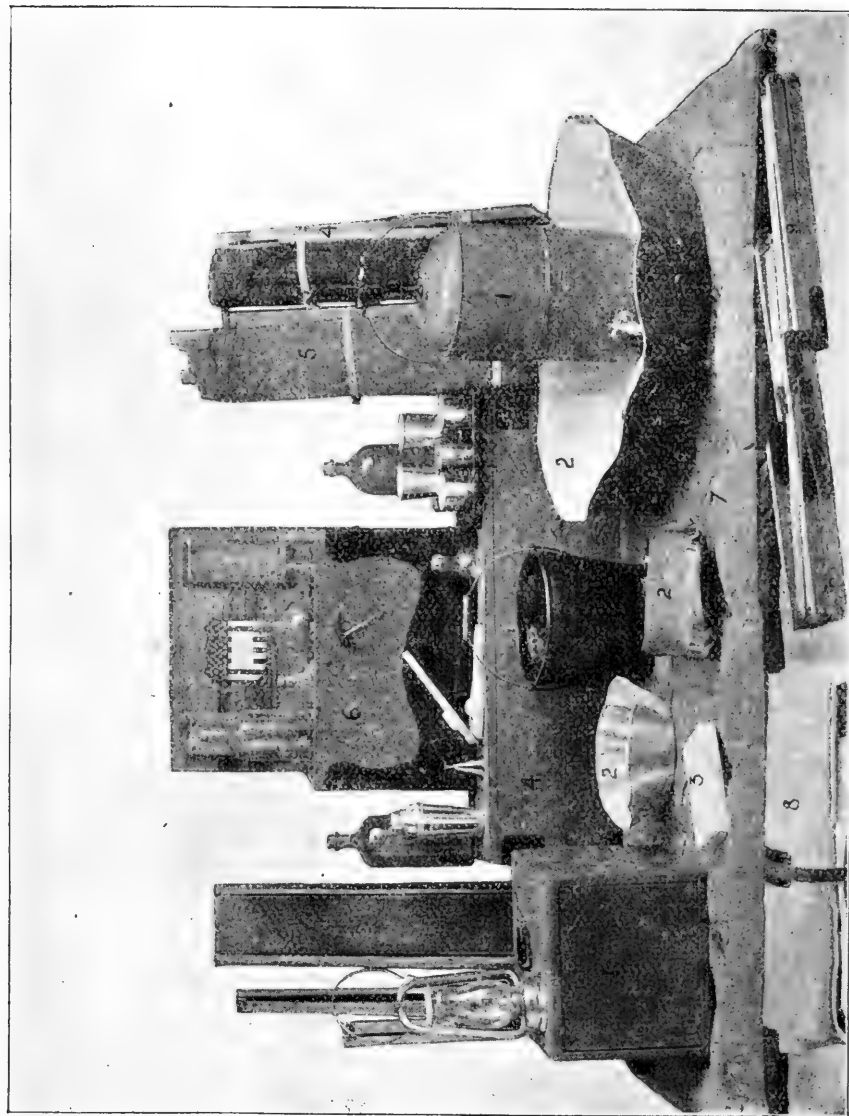
It is poor logic to assume that because animal man has involved dire faculties and attributes and progresses that our four-footed creatures are dumb and lack ordinary intelligence. No indeed, each has its limitations, and sphere, and for every unintelligent act that can be traced to animal life I will show you equal ignorance in mankind, as to our knowledge of their ways.

I know and realize, perhaps, that I am treading on "the corns" of some noted naturalist's pet subjects and theories, but I'll pit my old moccasin flat feet against their hard, shod ideas, any old time it becomes actually necessary.

In the preceding chapters I have here and there throughout the thread of my discourse mentioned many of the peculiar traits of wild animal and savage life, of both the higher and lower scale, and in this one I intend to dwell further on these subjects and present some remarkably astonishing facts as to the "ways of wild life and its creatures" that have never before been in print that my readers may better judge of how ignorantly we have judged these creatures of God's creation, who, as we know, were placed onto earth even before mankind, and who dwell with us now.

In our reference to these wild creatures we are prone to speak of them as dumb, ignorant brutes, and to judge them from our standard of intelligence. And did we but know it would be interesting could we but learn or know what these wild creatures **think of us, and our ways.** And to further enlighten you on some of these subjects is the object of this chapter.

To begin with I shall treat on the hidden subjects concerning the mysterious sign languages of both animal and savage life. There are peculiar, astounding similarities existing between human and wild animal life by which those in the wild regions find their way or provide for their wants.



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When we come to the social animals or birds who are included in this class, we observe that even these are more or less quiet, according to their mode of existence, life or haunts; those of solitary habit, such as owls, hawks, eagles, etc., and even the species they prey upon, both resorting to silence; the one lest it alarm its prey, the other lest it be observed by its enemy.

Neither must we infer that sounds by social animals or birds are or form a part of any language; no indeed, far from it, for while such sounds may be even identified as expressions of joy, pain, anger, fear, sign or signal, yet it is not language any more than is the sound of the distant woodman's axe, or the whistle of the locomotive, such as we hear in the forest woods. True, we identify the sound and know its meaning, but we cannot term it language, far from it. Indeed, in all animal life, sound is only used on rare occasions, and in seasonable time, and is to be avoided rather than practiced by them.

Even the sounds noisy birds produce can be traced or likened to expressions of joy, peace, love, passion, fear, happiness, pleasure, anger or song—acquired by habit and imitation, and employed for certain purposes and times. For their song is hushed when it becomes necessary to communicate with each other individually, while many of the cries that we hear are but expressions of anger, attracting or warning calls, as the case may be.

In their flights or migrations, too, cries are used largely even by animals, as well as birds, especially when they travel by herd, pack or otherwise; the reason why is plain—they are moving, the rustle of countless wings, the tramp of multitudinous feet, makes sound or sign necessary, such as will suffice their actual wants, but no more. And the bleating calf, noisy cub or lusty young is punished when it indulges in too much exercise of its lung or vocal power.

By signs and signals, movements of head, body, tail, limbs, even eyes, hair, ears, etc., they communicate with each other, not by sound as has been said, but a universal language of sign—sign language much as is used or has been used from the days of primitive man and savage down to the native Indian of today.

For I would have you understand that the art of the

speaking language, or that of vocal sound, has largely been acquired by habit, knowledge and education, even in mankind; thus has sound usurped the place of sign, which has become almost obsolete by reason thereby, even unto the savage, primitive or civilized races. Not so with animal life—theirs is still a language of sign, not sound; the latter being more or less acquired by habit, observation, selection, imitation in the various species, as we shall see.

Peculiarly enough I would invite the reader's attention to another thing of importance in explanation of my observation on these lines, i. e., that while nature blessed the human race with a facial and voice difference by which we recognize each other individually, it is not so in bird, animal, insect or fish life; with them each of the varied species look alike almost, and as they possess neither facial or voice difference, they must look elsewhere for other senses to take their place.

This, I claim, is accomplished by their possessing and recognizing the difference of odor or scent, which each of the species possesses, and which differs slightly in each, as facial difference does in us. Thus, by sight, do they first recognize or seek to recognize each other. But confirmed by smell, as we confirm more by seeing than hearing.

I can perhaps make this still plainer to the reader, for unfortunately while I have learned much of the ways of the woods and forest folk and nature, I have yet much to learn in letters. Still I feign would have you understand plainly, all things of which I write, be it this or other subjects, and in putting these things to you, will attempt to do so just as though we were talking together.

Take, for instance, the recognition of our friends; ordinarily it is by sight, yet how often has even sight proved misleading, for when we spoke to them we found it was someone else, and again, in the case of old friends whom we had not seen for many years, and who by this reason it was difficult to recognize, owing to changed appearance at first sight, did not the familiarity of voice aid us in recognition? In other words, we verified sight by sound or voice, and by these means, both, did we confirm the recognition.

Now, on the other hand, take the animal, bird or insect, each of its own kind, when in the wild state or element,

looks alike almost; their facial or other differences vary but little and are similar or alike to a great extent. Here is where they differ from us. Now, as they have no voice or language, as we would term it, it is obvious to the intelligent that while they can in their way recognize by sight alone, all those that they habitually come in contact with in their daily life, yet they must bring other senses or means to their aid, when recognition becomes difficult by prolonged absence or change.

For ample evidence of the truth is this, one has only to observe closely any of the animal, bird or insect life about us, and to listen or hearken not for inaudible or audible sounds, but to read and anticipate sign, to decipher, act, movement, expression, read thought and the secret is ours. A task perhaps beyond human nature now, for we have gone too far the other way, yet in my forty years of experience with nature and animal life, I have learned many things, which, for the first time, has ever been explained or put into printed form, as now.

As for proof, it will not be wanting before I have done; not that I shall seek to confuse by citing voluminous instances or anecdotes, but by confining myself to a few truths only, and on every hand will I prove to you or give you evidence to verify my statements that animal life learn from us by sight and sign more than sound. Your own dog and cat prove it, for is not every act you see that of sign among themselves—they only look to us for sound, and when we try to talk to them and they interpret it the act is simply mute evidence of our ignorance of their ways, and highly creditable to their understanding or intelligence.

Again we note the sounds as used by wild animal life, even these are but calls or signals—no more. Indeed, their very safety in the wild state depends largely on keeping quiet in all the name implies, and the more solitary the species as a rule the less noise and sound do we hear from them.

Thus when memory of place, thing and time is forgotten, animal life recognizes and confirms recognition by its sense of smell or scent; so does the ant, the insect, the bird, the beast or the fish distinguish its friends from the strangers who are

placed or come within their midst, because their power of scent is a sense that is even greater than sight in a way.

On the contrary, in our case, sight is our principal sense—hearing and smelling powers being poorly developed in comparison to animal life, despite the voluminous theories to the contrary, and this is largely owing to our limited use of same. With an animal it is different—its very existence depends upon the acuteness of both hearing and smelling, and so perfect have these sense become that in comparison to them their sight may well be considered feeble.

Scientists and naturalists, however, have given out theory after theory that animal and bird languages are those of sounds—supposedly inaudible in a way, and all sorts of explanations have been given as to the way they communicate to each other. Some have said that they have used a secret code of signals, which were as complexing and mysterious as they were varied, and that they even doubted that anyone would ever be able to interpret them.

In our case, we use language, because voice and hearing is our next best sense to sight, but when it comes to animal, bird or insect life who have no language or voice, they of all must depend on their next best sense, which is scent. Hence, when sight fails to recognize and distinguish, it is invariably that the final test of scent is made, to dispel any doubts which may arise in their mind, as to final recognition.

Thus it is by these means, that the mother finally recognizes and distinguishes its young from others of its kind. First by sight, which it confirms or proves by smell, by the same token does it distinguish friends from strangers, enemies from friends, acquaintances from relations, or assist memory to remember, so to speak. This memory, sight and scent being to animal life, what sight, voice, sound or remembrance is to us. * * * Reader, have I yet succeeded in making these facts plain?

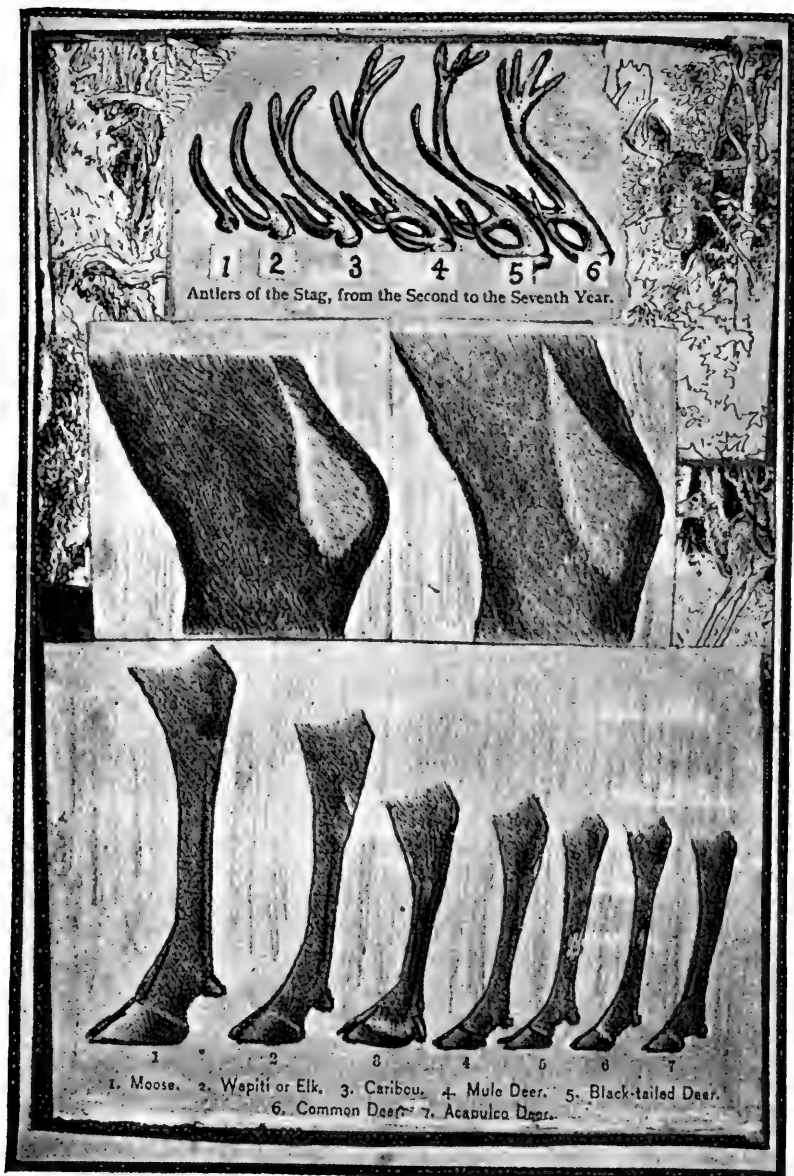
If not, we will shortly enter into a discussion as to how these wild creatures really communicate, fraternize, signal and leave messages to, for, and from each other in a way that will surprise you. For example: Even the Indians or savage, the African of the tropics, the Esquimaux of the Polar regions, all of whom I have hunted and lived with in

my time, recognize the value of silence and sign, for like us even they have profited by experience and observation, and have observed the ways of wild animal life, just as can you and I, if we but will. For I would have you understand that the art of the speaking language, or that of vocal sound, has largely been acquired by habit, knowledge and education, even in mankind; thus has sound usurped the place of sign, which has become almost obsolete by reason thereby. Even unto the savage primitive or civilized races, but not so with animal life—theirs is still a language of **sign**, not sound; the latter being more or less acquired by habit, observation, selection, imitation in the various species as we shall see.

In my life, I have seen many strange and seemingly impossible things of nature and animal life explained, which were I to include them in this chapter, would perhaps fall short of proving my theories. By reason of the reader's unfamiliarity with the subjects, I would quote. Hence, I must seek another outlet for such information, as will be noted later, and confine myself now to instances of animal life of which we both more or less are acquainted. Hence, I will put it this way. If I were to cite this instance and attribute it to a wolf, wolverine, panther, wild cat, coyote, or fox, the reader would by reason of his unfamiliarity of such wild animals, doubt the truth of my statements, so I will use for my subject, instead, the **Dog** or the **Cat**, and explain to you one of the mysteries and secrets of their lives, which perhaps for the first time has ever put into print. Yet, it will serve as an admirable instance to explain to you, one of the mysterious ways by which you can prove much of the animal language, signs and signals, and I ask the reader at the same time, to follow me carefully in what is to come, and try to read between the lines of my argument.

Who is there, who has not noticed that dogs as they go about in their daily life, **invariably travel nose to the ground**, and seem continually to be searching for something always (with nose and eyes); how many are there who know the real object of his search; I say **real object**, because there are many theories—so very many, that they confuse rather than explain. So for the first time in your life perhaps, I will make things plain as to this trait even.

ANTLERS AND SCENT GLANDS



The White Parts Show Location of Scent Glands.

Take for instance, a pet animal that cries to have a door opened to go out or in; the same cry is used either way—it does not ask to go out or in, neither does it in animal language say “open the door;” its cry is simply an act to attract attention, and the cry is varied only by the intensity of desire to indicate its want. Observe it closely, and by sign does it betray its eagerness and expectation, for its appealing look, movement, plainly evinces and enables one to anticipate its wants, if they will. That is the real language I fain would have you know.

Again, take the animal who paws and scratches the door, or the dog who whines, scratches and barks when shut up alone; why does he continue this—simply to invite or attract attention to his wants from the outside. The attention of man whose ways he tries to imitate; were it but a wild or savage animal, its noise would be less, or none at all, it would simply scratch patiently, persistently, gnaw its way out silently, from the weaker spot in its cage, and **never give up**, even after it learned the impossibility of its plan. If there was more than one of them, never a sound would be heard, but that they would deliberately consult, converse, reason and act, in concert with each other, as to how, when and the best way to get out by sign and movement—who can deny?

And this is but a single instance, but by a thousand others could I cite and prove that by sign, movement, expression and act, birds, animals, insects, all thus communicate their wants, be they giants of the forest, mites of the earth, air or water—all their silent testimony to the truth of the old saying—

“Actions speak louder than words.”

Elsewhere in this volume I have explained in a measure briefly, how wild animals, birds, and insect life, even fish, recognize each other, and verify sight or sound by scent, more than sight, sound or language. And forty years experience with silent nature, has proven to me that this rule applies to all, from the smallest living breathing mite or thing of life, to the largest of its kind.

Another peculiar fact is this: that while they all recognize by sight or sign, yet they verify these senses **by scent or smell**, and that while we can impose upon the eye or

mind, we cannot on memory or smell, except in a limited way.

Now take dogs for instance. If you watch them as they go along, you will notice that they approach certain objects, such as a tree stump, log or mound (corner or lamp-post, telegraph pole, curbing, fence, post, or brick-wall, if you will), you will invariably see them stop, smell or scent it carefully; then mark it or **"urinate"** thereon; perhaps once or twice, go through certain peculiar motions, and pass on again to other certain spots, locations or places, and repeat the performance. Now how many of you are there who really know what all this means; never in your time of life perhaps have you had this explained, so reserve your decision until you hear what I have to say on these hitherto unknown subjects.

That dog was simply confirming what I have tried to make plain to you all, i. e.—that it was using **sign language** and confirming sight, or memory by smell or by his own token, leaving sign for information of others of his kind.

It was one of his tribal signal stations, and by the recent signs of others of his kind left there, he was able to judge who left them, and not only this, but how long since, and what direction the maker of the recent sign was traveling from that particular spot. Not only this, but he recognized and identified who made them, even—whether it was a friend, acquaintance, stranger or enemy, as I intend to prove to you now.

POWER OF SCENT AND SIGN

If you observe the animals closely, you will see that by sign do they show certain recognition or indifference; at other times, more than passing interest. Either way this was caused by recognition, that the sign thereon was left by a friend, acquaintance, stranger, or perhaps enemy. If you have, or will watch them closely, you will note how deliberately, or eagerly they then smell the ground, and follow on a ways searching the ground for more sign, as if they meant to follow in the direction of the trail of the animal who visited the place, or who evidently preceded them. They will do this for a while, perhaps on each oc-

casion, sometimes showing extreme eagerness as remarked before, and at other times contempt. The reason of it all, is because he has recognized by scent that the animal who made the sign he had smelled, was known to him, and the truth is, he fain would meet him, follow on and renew that acquaintance; you can tell this by his apparent friendly way, for at times, he will wag his tail, and show positive evidence of delight or anticipation, as he recognizes who visited that particular spot.

Now, on the other hand, perhaps it was treated with indifference; if so, it was an old sign or visit beyond recognition by scent, hence was covered up by his later sign or mark, or again you might have noticed he showed actual contempt, mingled with low growls, instead of a whine of pleasure, then you may be sure that the sign was recognized as that of a stranger or enemy who dared leave mark of visit on his station or beat; perhaps one with whom he had an old grudge to settle. If so, you will notice, he will twice leave his sign, or turn around and deliberately scratch dirt at it, and with a hoarse deep meaning growl, leave plainly his sign as a mark of contempt or defiance to further emphasize his insulting remarks or meaning as to his visit or presence there.

Or, I will put it to you this way. Supposing by the sign on that place he recognized his old chum, "Spot" (excuse the phrase), he acts as much as to say—between sniffs, "Hello Spot's" sniff, sniff, "I'd awfully much like to see you again"—sniff, sniff—"let's see"—sniff, sniff—"which way have you gone"—sniff, sniff—"it's too bad I did not smell or scent your sign before it's a day or so old"—sniff, sniff—"well it is no use following you now, I'll have to trust seeing you again some time elsewhere and will leave my sign or scent to tell you I've been here just the same."

Sunset Tints of the Sky—The colors most commonly seen at sunset are **yellow, orange and red**. The rays of the setting sun are dispersed, during their passage through the clouds, or accumulations of vapor at the horizon, and only the colors that are least turned out of their course, viz., the yellow, orange and red, pass through and light up the western sky.

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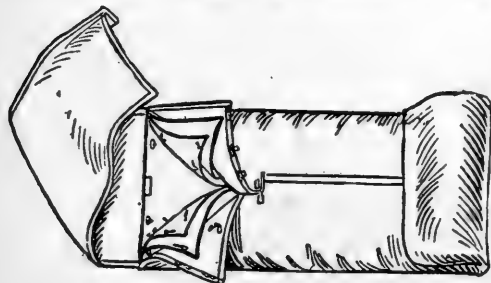
Dry Enough for Rainy Weather.



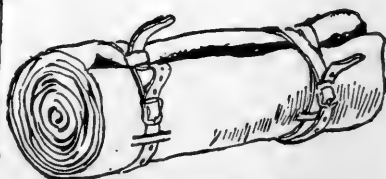
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SIGNALS, ETC., ETC.

Or perhaps it might be like this—sniff. “Hello, here’s Spot’s sign,” sniff, “why he was only here a few minutes ago,” sniff—“let’s see, which way did he go,” sniff, and nose to the ground for more sign, he’s off in the direction Spot went, in an effort to overtake him, trailing him out, using scent to overtake him—this by the power of scent alone.

Still again, it might be a stranger who dared pollute the station with his sign, or be “Towser,” his avowed enemy, or the “Bully” of the territory, whom he is anxious to meet and have it out with in another good old-fashioned scrap or chew. Either way, you can see how by act or deed he expresses his contempt, silent or otherwise, and with his meaning by his scratches, which makes the dirt fly between signs or growls, something in this fashion. Brr-row, brr-row, “dog gone your old hide, Towser” (or stranger); “if I catch you around my stamping ground, I’ll chew the life out of you.” Brr-row, brr-row, and the dirt sure flies at every scratch, as if to emphasize his meaning and to leave a further warning to **others who pass that way.**

These are only a few instances of the ability of animals to recognize or verify sign by scent, which as I have said before, all belongs to the language and ways of wild animal life. Bear in mind, please, that I have only cited here an instance of the dog, so as to make things plain to you; later on, I shall tell you of the varied ways of the different wild animals, which will interest you still more and shed more **“Light On Dark Places.”**

That animals generally who dwell in certain districts or communities maintain these certain signal stations, I know. Forty years experience has proven this beyond doubt. They all hold in a way, and maintain their community, or district rights; post their signs thus, to let each other know when trespassing or on strange, unfamiliar territory, so as to let each other know of their certain whereabouts, or to find **their own way back again, mind you,** by the further exercise of this astounding power of scent alone.

Further than this too, I desire to impress on the reader this fact, that not only are there **“signs of urine”** so recognized, but even **manure voidings; scratchings.** Even hoof,

foot, paws, tracks, are equally so identified as to whether or not they belong to **acquaintance or stranger**.

In wild animal life, this serves various purposes—to inform each other of their movements and locations, visits, and to also identify things that have been observed, or places visited by them, and any old experienced trapper or hunter, who has made a business of observing these things, will tell you, that when they bury or hide their foods, they leave these signs there, to mark, identify, and claim them as their own, and if there is more than one, each will leave its sign in turn—one after the other.



LEAVING THEIR SIGN OR MARK

Perhaps too, reader, you have noticed that even dogs, certain of them, use different places, as their signal station; for instance, when they "urinate" and leave these signs, that if you watch them closely, you will observe certain difference as to their locations. For instance, one set will take a street-corner, another clique will use the house-corner, another the fence, still others a tree, lamp-post or telegraph pole, others the street curbing; now all these are varied and known stations—like a post-office, where they receive and distribute messages, and in "dogdom," they're only using a habit which has been inherited and brought down from the wild species of their kind.

Now if you were a savage Indian, old woodsman or trapper, if you should when going into the woods, observe here a rock, stump, or deadfall, there a bush, cliff, hill or mound—you would use these things as your signs or landmarks; thus, you can see that the animals follow the old woodman's plan, who blazes his way by cutting with an axe the bark of certain trees along his route, or in breaking or bending over, branch-clippings, so as to indicate his route, either for the purpose of finding his way back again, or to inform his friends of the direction he has taken, in different paths, through the forest. Now, as animals can neither blaze their trees or bend back bushes as does the woodsman, it is obvious that they must have recourse to other things; hence, you can better understand why they leave their different signs as I have before explained, each and every one of which has its peculiar significant (I may say) fraternal meaning.

Not that I would have you think each of the species of wild animals do the same thing; take wild cats, panthers, mountain lions, fox, wolf, coyote, muskrat, mink, beaver, wolverine, weasel, hedge-hog, each have their own peculiar methods and stations; some purring like a cat, rub its fur against a rock, bush or tree; others will claw a tree, sharpen their claws; still more roll or scratch the dirt; even moose, elk, caribou, reindeer, bears, even polar bears, musk-ox, all have their peculiar signs and leave them wherever they go; even the grizzly bear reaching up and leaving their signs

(claw marks) well up on the stumps of trees, growths, all of which is mentioned in their respective chapters, as we shall see as we go along.

Another important meaning to this act of urinating or watering frequently here and there, as is the case with many wild animals (like the dog) is this: That by it he is enabled to travel to strange and far distances, and by the use of these marks and signs **smell his way back again** to where he started from. And, further, that even with lack of these signs so keen and acute are the powers of scent in animal life generally that they **can actually smell and remember the directive points they travel or are carried over without such signs**, only it is a more difficult matter. By this I mean that they can **identify a district** by its scent or smell, and so memorize it as to find their way back to that very **district if needs be**.

As to community and district, even certain property rights, we can observe and repeatedly trace evidence of this in wild animal life, be they social or solitary. To them the district or locality which they exist in for generations is as our home and neighborhood to us. Every rock, hill, ravine, log or peculiar stump within their territory is noted and memorized just as are the important street corners to us. They travel in paths and by-ways, as periodically and regularly as we do travel the streets, and so closely do they observe the peculiar differences of things that no unusual looking object escapes their diligent notice, **exactly as does a savage or Indian his way by sight alone**.

Indeed, wild animals thoroughly familiarize themselves with all who live within their districts, and can practically recognize these places by sight and scent, just as we do our neighbors or districts, even though they may not be on "speaking terms" with them. They have their friends and acquaintances, their cliques and clans, and as a rule confine their roving to their own well known districts, beyond whose certain limits they seldom pass, except in the seasons of migration, love or festivity, for the reason that they understand fully well that they will be regarded as trespassers by those animals on whose property or territory they pass through, at these times, and **be treated accordingly**.

Further, I wish you to know that there are certain dis-

tricts which belong to certain individuals and are so recognized. Not only this, but that they even recognize, distinguish and punish trespassers or strangers who encroach on these territories. And, further, that they recognize or distinguish these trespassers or strangers, even when they don't see them, by means of their track, trail or footprints, **no two of which are exactly alike.**

I know I will be laughed at by many when I say that animals even recognize and respect certain conditions of plant and animal life both, and maintain reserves both for game and food, or territory that is used on only certain occasions. Not only this, but that they refuse to eat certain plants, berries and bushes that have not fully matured, passing them by as though to say, "a little later you will be in better condition for my wait, now."

The same rule to animals who are flesh-eaters; they oft-times will refuse to molest a female who is bearing young, acting when they discover these facts as though ashamed and seeming to say or reason, "well, later on I'll have a feed of your young ones instead of you now." Many a time I have seen evidence of this, and have even known weasels and minks to only take a part of a family of young, without molesting the old or the others, as if they believed in practicing some sort of economy, alike to leaving food for another day.

True, at times they exterminate whole families and show signs of blood-thirstiness more than hunger, but putting this and that together I believe that in such cases they are hunting off of their own territory, trespassing or poacher like, or else have harbored a grudge up against that particular kind.

Right here I want to be understood as one who denies that animals are generally exterminators of such species which they regard as legitimate prey; far from it; they use at times as much sense and reason as do we, and far more in many things. Again, too, I have noted that there seems to be a good deal of enmity existing between certain animals, and that in these cases, when they meet, there is pretty sure to be a war of extermination waged between them, whether hungry or not, as if to settle old grudges, differences or feuds that seem to be remembered by them. In

short, there seems to be a spirit of memory or resentment which influences them largely in these acts.

I also wish to say at the same time that even among their natural prey there are some that do not molest even these kind, as though there was a certain friendship or mutual understanding which existed between them.

Also that there are times when they will deliberately catch a victim and allow him to escape, not by accident as we would term it, but as though they reasoned and said, "Well, I'll let you go this time, but look out for me the next—you see I can catch you," or in this wise, "I'll reserve you for a feed later on, when I'm more hungry than I am now." The idea which seems to be general that animals catch and kill whenever they can, or when opportunity presents itself, is altogether a **wrong one**.

I know personally many instances where they have not only suffered their game to go unmolested, but have actually driven them away, as much as to say, "Get out of here"; even chased them a few rods for "practice" and then have turned and lain down again apparently indifferent, and yet pleased with what was a plain case of a "don't need" or "care for you" feeling. I am positive that these rules apply at times to all wild animals, fish, bird or insect life. And as I have repeatedly stated, there are times, unquestionably, when all seem to be more or less at peace with each other.

Of one thing you may be certain, their intelligences suffice to enable them to reason out that a war of extermination would be fatal to their future existence, and over forty years' observations of such things has proven to me that wild animals are not the fools to indulge in this, but that they reason out and use judgment in such things, more than we. And I am positive that they also exercise thought and judgment as to those they kill, whether it be male or female, young of tender age, old and infirm, with reference to seasons of scarcity or plenty.

Peculiar Traits

I have known foxes to den for years, and to avoid molesting certain rabbits and burrows that existed close to them, and I have every reason to believe that they actually lived on what we would call "distant terms," and in

certain seasons, winter, for instance, I think it not unlikely that there was a tax regularly imposed by that fox family on his rabbit-ship. Further than this, I will cite an instance of the eagle who periodically imposes a tax on the fish-hawk or king fisher who operates in his, the eagle's domain, and who once in a while only steals the captured fish from his hawk-ship as a sort of a rental for operating on his territory. And the more I have seen of such things, the more I am convinced that the eagle reasons out that he is seeking a sort of a rental from a worthy tenant who is useful, and that did he continually steal his prey, Mr. King Fisher or Fish-Hawk would for reasons thereby leave for other territory; hence, the two get along on a sort of live and let live basis, or pay-rent-once-in-a-while style.

When we see such things ourselves we are prone to jump at the conclusion, for instance, that it is a fight between hawk and eagle, but when one sees them as often as I have he knows different. True, at times, the hawk contests this tax-like imposition, but I can only liken it to "can't" or "won't pay if I can help it" plan.

In this the reader must bear in mind I refer to animal or bird life which exist in certain territorial districts, where each gets more or less acquainted with the others of its own or other kinds inhabiting the same regions as they. When, however, they are migrating, or on territory distant from their own, they act much as thieves, robbers, trespassers and tramps do, and the best wins. Thus, when a strange bird or animal is found encroaching on another's territory, they seem to act the part as though they knew it, for it is then that their savage fights and combinations against each other seem to take place.

I will put it to you in another way. Take, for instance, a bird or squirrel who nests in a certain tree—that tree perhaps has been its home for generations past, or rather the home of its family, which has been handed down from one to the other, generation to generation, and it recognizes it and considers it as its own property. They do this just as much as we do our home and location, and they will invariably dispute its possession by others who seek to displace them or usurp from them with all the power they

possess, and they yield only to superiority or mastership. In other words, they must be driven away, or forced out.

I don't care what the species, whether it is bird, animal, insect or fish, it is the same; they have their favorite spots and haunts, and will contest to the limit possession by strangers or others not to their liking. On the other hand, many times they seem to live close to and in harmony with enemies of their kind—seeming to tolerate them just as though they had a pre-arranged sort of understanding, that each could do so with certain impunity, depending on minding their own business, and keeping off each other's rights, or territory. Remember, I do not wish my readers to infer that they live on any terms of "friendship" or intimacy—far from it, but that they do live on terms of toleration I am positive.

Perhaps the plainest instance or evidence of this we have in the prairie dog, owl and rattle-snake, with which nearly everybody is to a certain extent familiar. Hence, I will cite these as an instance, and will quote what an old Indian chief told me some years ago, when I was employed by the now famous 101 Ranch, Miller Bros., of Oklahoma. The story was, in fact, verified by five years' service in that territory, when I was employed by the United States Government there, 1885 to 1890, as is mentioned in my record.

To give you the Indian's words literally would be impossible, as I made no note of it at the time, yet my understanding of his ideas was like this:

Him dog no like snake, no like owl; bye-bye too much young dog. Owl eat 'em young one, bye-bye too much owl, snake eat 'em egg, bye-bye too much snake, 'old owl eat 'em young snake, sometime owl he fly away, someone else catch him; long time snake, owl, prairie-dog be all same—no get more. No like each other.

Thus we perceive tolerance and mutual good to each other—a sort of promise, or compromise, as if to keep down any surplus or over-population of a limited district as it were. Another instance, if not absolute proof, of the reasoning power of animal life. Be it as it may, it can be likened much to the animal or savage-like habits of man, where they even have been known to kill and eat their own off-

spring, even their parents, relatives, when they became too numerous, or so old as to become a burden.

Neither have we to cite primitive man or savages for evidence of these or similar things, for, strange to say, deny it who can, there are even amongst civilized or educated beings those who make away with their young or murder them for similar reasons today, and who desert or drive out their parents even, much as do the wild animals; hence, the one great stain or blot against animal life or their intelligences is even found in the human being as well.

Neither will I rest yet. For while I could give innumerable other instances, I deem it unnecessary, except to mention as a comparison the habits of fish, who show all similar traits, in respect to this or their property rights, for, as is well known, nearly every species show preference to certain locations, districts and places, and nearly every fisherman or angler will tell you of the "big fellows" who monopolize the best locations year after year, and who defend and resist with all their powers intrusion of certain others, yet seem to tolerate at times those whom we regard as their enemies even, apparently for the good it does, for they seem to know that it serves as a lure, or to deceive, attract or decoy others to that vicinity, in order that they may prey upon them.

Again, wolves will often make a surround of certain game which is feeding and await them at a certain or particular location to which the game is known to pass or repass, and will content themselves with obtaining a few stragglers once in a while, unperceived, instead of going in and stampeding the herd, or in taking what we would call "pot luck." All of this I regard as true evidence of the reasoning power and intelligence of animal life, exactly adapted to circumstances or conditions which exist at the time.

While writing of this, it brings to my mind another peculiar trait of animal life which we perceive is somewhat similar to that of the savage kind, and which is brought to me forcibly by my polar and Indian experiences, i. e., the similarity of savage mankind to wild animal life under certain conditions, social and solitary. We speak of mankind as a social animal, who lives in large communities and is not

solitary. Now let us see how far this goes. I claim animal life is not as solitary as we assume, and I have in a way explained how animals who really do live in communities recognize and tolerate those that exist in the same territory with them. Later I shall show you how, in certain seasons, they often get together in seasons of peace and plenty, and seem to live in harmony with each other during that time. I have also tried to point out how they have their certain districts, property and ownership rights, love of home and haunts and a dislike or suspicion of all strangers not known or familiar to them, and, further, how for generations they live in the one district in preference to others; how they are regarded and treated as strangers and enemies when they go beyond these limits, and how, at certain times, they form little cliques, clans and bands and co-operate with each other and try to prove how, in all animal life, this is in a way as described.

Now let me take you back to savage life. We find similar traits with those that live in large communities, socially, and with others who live in small families for generations together—in a way live exactly as animals do. They have their certain limited territory and property rights, and regard as trespassers, strangers and enemies any who encroach upon their own hunting territory. We see the stronger imposing upon the weaker, even to eating each other—cannibalism, as we know it. Some living in large communities as in Africa, others in small families of a few generations or families only, as in the polar regions. Some live abject, solitary lives, driven out by their own, just as do wild animals, tribes, a few miles from each other; often wage desperate war with another, life enemies so to speak; others a family or so living apart, solitary, secluded, and having few things in common with each other; the bulk of the work falling on the females, just as it does in bird and animal life; we note that animal females become solitary to give birth to their young, retiring from the male, and hiding to produce their offspring, even driving away the males. Squaws retire alone, allowing no males to approach them at these times, and the Indian bucks evince no interest or desire to. In many other ways and habits they resemble the animal to a large extent.

Again we speak of birds and animals who only flock together at certain seasons of the year to migrate; we find this same thing with the human race, especially amongst the Indians or savages, who go north, south, east and west, migrate immense distances in seasons, just as do the animals and birds, and who vary their habits, life and diet, just as they do with seasonable change, and no more variety. They have their caste, distinction, likes and dislikes, good, bad and indifferent standards, just as do we; they tolerate certain enemies, and discriminate to their tastes as we do ours. They recognize superior qualities, differences in intelligence, and distinguish between those of the inferior grades or species as well. They can tell stranger from acquaintance, relatives from friends; think, reason, plan, converse with each other by means of a sign language without the use of words.

True, civilization and education has made the vast difference between us and the savage, but from the wild animal and the savage there is but little difference in lots of ways. Indeed, when one comes to think of it, of the two contact with civilization and education has degenerated the savage, but the wild animal, when left to its own resources, seems to improve.

It has also been argued pro and con for generations that while animals, birds, etc., etc., have their mating, courtship and breeding seasons, mankind has not. Now, is this true? If we go back to the savage or primitive life, even Indian, we find they have their seasons of mating, courtship, love and breeding, too, and that it is generally in the seasons of plenty food, spring and fall, just as are the animals, and that their periods of courtship, mating and marriage are mostly in the spring and fall again, and births in season also. Now, strange though it may seem, although civilization and habit has changed much of this with us, I believe records will still show the preponderance of evidence as to a natural, seasonable time for these things. But when we come to the wild savage or Indian life, we find it all the more rigidly adhered to; their seasons of courtship, mating and breeding are in a comparative way almost exactly influenced by the same adaptable period of time and food, as is with but few exceptions all animal creation.

Indeed, the more closer we get to nature we find certain similarities existing or traceable to that of animal life, but it has been made so vastly different because the hand and ways of man made it so. This is not true with wild animal, bird or insect life, which is swayed and influenced by nature only, and although we are loth to believe many things that are true, we are also prone to ridicule the truth. Yet we cannot deny that nature is at least **natural**, rather than **unnatural** as we are in many things.



In the Trappers Absence.

LOCATING SIGNALS AND SIGNS

We see the same in almost every animal that lives; each species in its own peculiar way having its own special signs, so plainly depicted at time that we ourselves can distinguish and recognize them at a glance. Nor have we yet entered into argument as to the many varied and distinct sounds which all go to make up, an endless chain or sign language, so complete and perfect for the animals which use them that there is positively no necessity for more, much less any other kind, which would really be, if it existed, a curse rather than a blessing.

Even with us, we seldom have to be told what approaches us; our ears tell the story before our eyes verify it, and even we, in many instances, can frequently tell what it is by the sound alone, in the distance, whether it be coming our way or going from us, whether it be animal, bird, man or reptile, almost. Not only that, but we can recognize by the foot-steps alone in many cases what the individual is, or who makes them. The buzzing sound of blow-fly, mosquito, wasp, hornet or bee—even the common fly can be distinguished or recognized by its sound, small as it is, even before the eyes have seen it. Now, if we were people of the wilderness, it would not be difficult to recognize how one would soon be able to tell by the rustle of the wing, or the sound of any animal's approach exactly who and what made it before our eyes sought out the object, or before our nose or scent, poor as it is, even played the part of recognition, so acute in animal life. We would not have to be told what it was, nor to tell others, for in an easier, safer, quicker, better way, this information would be imparted by sign and sound alone.

As it is with animals, so is it with savage or Indian, all of whom go by sign, mark the way they travel, and these signs we will note are as ingenious and plain as they are simple and effective. You will also observe that each tribe has its peculiar stations or locations to these signs, which are left and made that others may seek out and read them for their indications as plainly as we could read messages.

Like the animals, these stations are usually known as those most frequented by the tribal members of their kind. They may be, for instance, in the bends of rivers or creeks, midst clumps of certain trees, or close to certain rocky formations, near hills, ravines, or along certain trails. Nevertheless, they are signal stations reserved for their signs, just as among animal life, as I have described.

Even in savage or Indian life they use similar signs. It may be a simple pile of dirt, sand, sticks, stones or marks, a piece of skin, hairs, a bone, or an object in a certain forked branch of a tree, and my experience with Indians has taught me many of the meanings of these signs. For instance, a pile of sand in a certain spot meant that Sand-Creek was the object point of their travel. Again, a piece of buffalo skin or hair in the forks of a certain tree would mean that Buffalo Forks was their destination; a piece of wolf skin in the bend of the creek or river would mean Wolf Creek. Again, the ashes of a camp fire, kindled from willow or other woods, would oftentimes signify where the remainder of the camping party was to be found by the kind of wood that was used in the fire. Even a few stones sought out in certain places told by their number the story of days and doings that to those initiated in the meanings of these signs meant what a letter of words or a written dispatch would mean to us.

Thus does even the Indian silently choose, maintain and mark by signs certain places known only to his tribe, and by the same token is it that animals also travel, and similar strange places or objects become their tribal stations, or sign posts likewise, all of which serve to indicate their whereabouts, route or direction which they take, that others of their tribe or clan may follow on or themselves return, and the few simple meaningless marks or scratches that we see near a certain log, tree, stump or dead log tells a story to them as though it were written in our way, on pages of paper, for as ours is a language of words, theirs is of marks and signs, well known and recognized by those of their own species and clan.

Again, not only do animals leave their marks, urinations or droppings, signs as described, but they have it under-

stood amongst themselves as to where and how to leave them. One set selecting certain trees, as, for instance, pine or spruce, others oak, hackberry, willow or cottonwood; others mounds or bushes, and not trees; and still more, logs, stumps or rocks, and neither trees, mounds or bushes; in other words, I will say, in brief, that there are certain agreed signal stations as varied as is their methods of making signs, for they not only have different and distinct places to leave these signs, but in many different ways as well.

Again, some wild animals roll on the ground, others scratch logs, ground surfaces, rub certain trees, stumps or rocks with their bodies, leave **their water** (urinations), **scent or manure**, and by a hundred ways or means vary these signs, and mark the places where they leave them thus. The reasons are obvious; animal intelligence has learned by experience that it must of necessity hold and maintain distinctive marks of recognition in their signs even; that is why each species or clan and tribe seems to have its peculiar differences, both as to the manner of leaving them and place. Hence, the wild animal we see taking a good roll, **scratching up the dirt** with four legs, clawing or scratching the trees, rubbing his body against rocks, bushes, trees or stumps, or voiding against them, is really doing something else besides easing nature as we imagine.

Surely it will be unnecessary for me to specify either the place or ways, or cite instances as to them, for have I not already told my readers that these vary and are in accordance with their selection, which varies, too; and it is beyond my power to fathom their secrets, except in a limited way. We can, however, take, for instance, the deer, moose, caribou, elk and reindeer. Each of them rub their bodies against certain trees; pine-martens will use the branches; musk-rats, beavers, mink, otters, will rub or use roots or stumps; lynx, wild cats, wolverines, bears will scratch or claw trees, often reaching up as far as they are able, while wolves, foxes, coyotes will water against stumps, mounds, rocks, bushes or trees.

Now, if we take into consideration these things, we will find that even the hunter, trader and trapper have fol-

lowed the way of leaving their signs or marks in a somewhat similar way. The woodsman, for instance, blazes or marks with his axe trees in the dense forest through which he passes, so as to mark or indicate the way or route he has traveled through the thick forest ways or virgin dense brush or timber through which he forces or finds his way. At other times he bends over backward or forward certain small bushes or branches for the same purpose, or if in the mountain, turns over stones or groups them together here and there in likely spots, and so on ad infinitum.

Yet these are all signs which serve a similar purpose, as animal signs, exactly.

The wild animal, as it travels to distant places, waters or voids on these prominent spots, and by such sign and scent is he able to remember them, and to return by them, just as is the woodsman able to return by the blazed route he has made, or in the mountains with his stone signs or marks. Equally, too, those who recognize or know these certain signs or their location are enabled to follow them or to read their various interpretations or meanings, and by the same token, in a limited way, do animals follow and read their signs.

MORE ABOUT SIGN LANGUAGE, SIGNALS ETC.

Men versed in Indian and savage lore know well that Indian tribes each have their stations, signs and meanings, in exactly similar lines—one tribal nation differing from the other only by its distinct peculiarity. With one tribe it might be a stick in a notch of a tree, or stuck up in the earth, close to a certain well known ground—a few stones, piece of bark, burned wood, like a camp fire—the hundred apparently meaningless marks constitute signs that represent a veritable language, so to speak. Reader, have I yet made things plain to you?

As additional evidence of the knowledge thus gained that the powers of scent and the recognition of sign with animal life, it will doubtless surprise many of my readers to learn that wild animals generally possess their own

conceptions even, or knowledge as to kind of track, trail, sign or scent made or left at these places, who made them, and when, whether a few hours or a day old, or more, and the direction which was traveled therefrom to a degree that is astonishing to us, and that by these means can they invariably follow, locate or overtake those they desire to meet, or to avoid those they do not, equally as well.

Also, that they possess the power of withholding their scent to a certain degree, should it become necessary to confuse or mislead their enemies or kind. Very often we will notice an animal continually searching or trying to scent another who, for some reason of antipathy or dislike, refuses to become party to the identification, apparently aiming to confuse or render the knowledge difficult to gain if only for a while. This is done by partially, or wholly, withholding the breath, and is prolonged or influenced largely by the animal's condition, as, for instance, whether winded by running or not. It really seems to depend on the animal's lung or will-power. Again, too, it is possible for animals who conceal themselves, who lie still or doubled up, to withhold their scent from those who are coming their way.

By the same token, too, can they emit or increase their scent, as well as withhold it, as circumstances require; in some cases you can see evidence of this, dropping the tail, contracting its body, the holding of its breath, and, finally, by snorts or gasps, when it exhausts or expands its lungs again—an act, by the way, that even Indians or Esquimaux follow when in close proximity to gain time, in order to lessen his chances of being observed by the animals' sense of smell. Again, we note that when they leave their dens or burrows animals invariably smell or scent around them, and do the same thing prior to re-entering them after an absence; this is to ascertain if there are any signs which indicate that someone has visited there while they are away.

Again, we can note that when approaching a carcass, for instance, a dead bird, fish or object, that they rely largely on scent and sign to inform them whether or not it has been visited, killed or marked by another animal, and if so, it will often be left untouched, especially be it

marked by any of the signs I have described before, which would, in a way, distinguish it as the property of the animal who marked or claimed it. Not that it is left always so, by any means; this depending largely on whose sign it was, for I have seen time and time again where the finder has settled down indifferently to a feast after smelling and nosing around it, as much as to say, "Well, I don't care for him—he knows me." On the other hand, I have observed that where the finder has, after a few sniffs, at times found out who it belonged to, that he has often scurried away, tail between his legs, without touching it, as much as to indicate that it belonged to a particular enemy of his, and to reason out that if caught around there he might get into serious trouble. And I believe this has been often verified by the fact that when particularly hungry and feasting on such remains, they seemed to be in a state of agitation and fear, that they would be detected in the act.

Again, we find evidence of the powers of withholding or increasing the scent when animals are pursued in the thicket or close timbers, for they will periodically emit or retard their scent, alternately, giving a strong scent as they enter thick brush, and then doubling and retarding or withholding it in an effort to confuse or throw the enemy off their track, and by such means gain advantage of delay by the act. This, however, becomes a difficult matter when the pursued or tired animal becomes winded, and in such cases they will invariably seek to hide and rest, seeming to know their failing, and to recognize that when first heated or run much the scent is all the more evident, or beyond their feeble efforts to withhold. And it is a fact, too, that when extreme exhaustion results that even this scent seems to be exhausted or lessened to an equal degree, and if the chase is thus long continued they become so that they can neither see, hear, smell or proceed further, so completely fagged out do they become. Their eyes become glary, the body weak, steps staggering, until they sink to the ground, helpless, and seeming to give up the unequal contest without further effort.

By this time I believe the reader is satisfied that sign, scent and sound constitutes the language of all animal life;

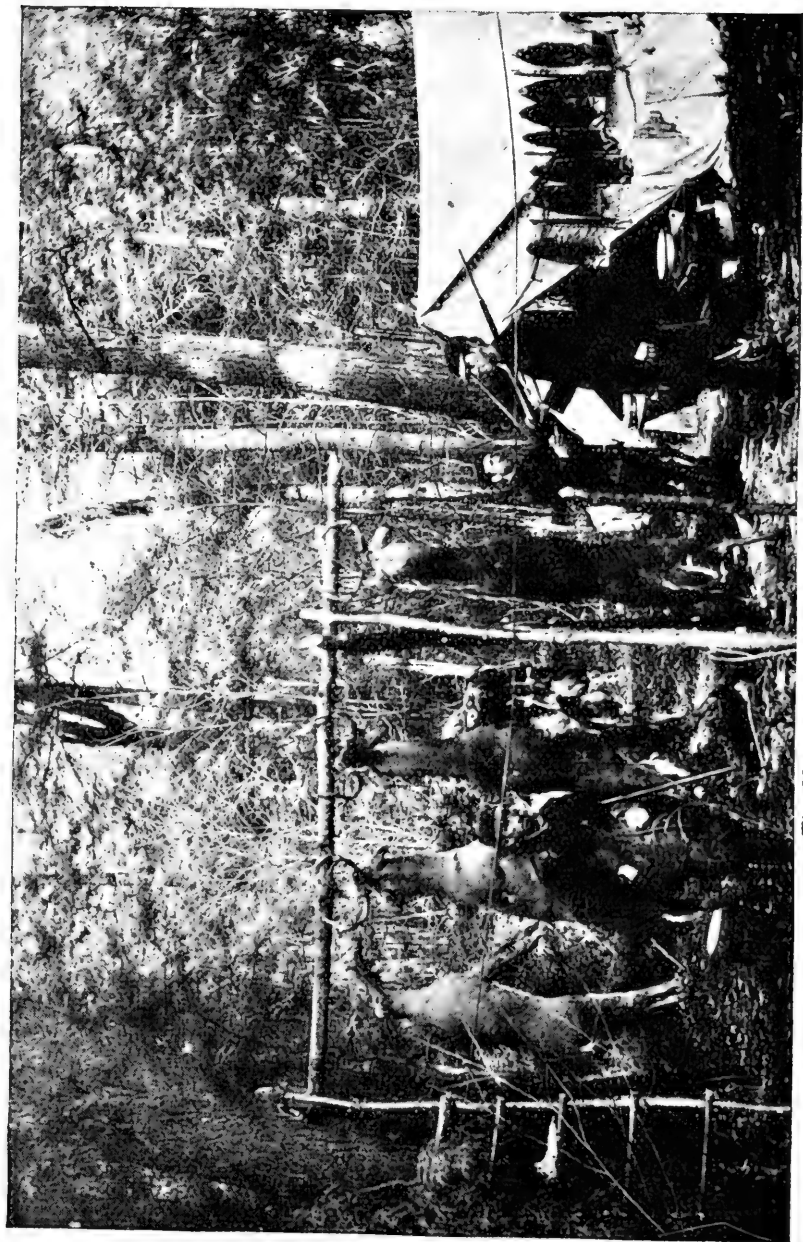
that act, movement, expression, smell, anticipation and recognition in a thousand different ways all prove the existence of a universal sign language among the species, much of which can even be interpreted and understood by species other than its kind.

ALARM OR DANGER SIGNALS, SIGNS, ETC.

The flap of the beaver's tail in the water, and the noise it makes, is just as complete a signal of alarm or danger as would be our words or call. The movement of the ants' antennae, head or body expresses by sign a language suited to its every purpose, and it verifies doubtful recognitions by smell or scent, just as we do by voice or vocal differences, as explained. The sound of the rattle-snake's button indicates its fears and wants, just as does the tail of the beaver, while the movement of the tail of the squirrel, deer, rabbit or hare flashes its signals in its flights that answers its every purpose, exactly as sound would, for it is all sign.

The chirp of the bird, the movement of its head, body, wings or tail, its cries of alarm, strangeness of flight and actions, all mean language and sign.

The stamp of the foot of the elk, antelope or moose is as plain a challenge as words could be; the movements of fish from minnow to whale, and the sound of these movements in the waters, be it pool or ocean, is as plain a sign as is the thud of the woodsman's axe, falling tree, or pistol shot, to us, who recognize the sound and know what it means. The drumming of the grouse by its wings, the hammer-like noise of the woodpecker from the hollow-wood of a dead tree, is a love or mate call, that to its partner is like the call of the distant cow-moose to the bull, for they are sounds made necessary by distance, where sign would be unavailing. Yet all these sounds are signs just the same, as is the whine or bark of the wolf or coyote, the yelp of the fox, the mew of the wild or domestic cat, or the bark of the dog, for are they not all signs to attract attention, betray its distant wants or fears, or as a call to its kind?



The Hunters and Trappers Headquarters.

The hoarse bark of the seal or walrus, the "flukes" of the sperm—right or bowhead monstrous whale—are all signs and signals that have their meaning and effect. I have hunted each in turn, and know whereof I speak.

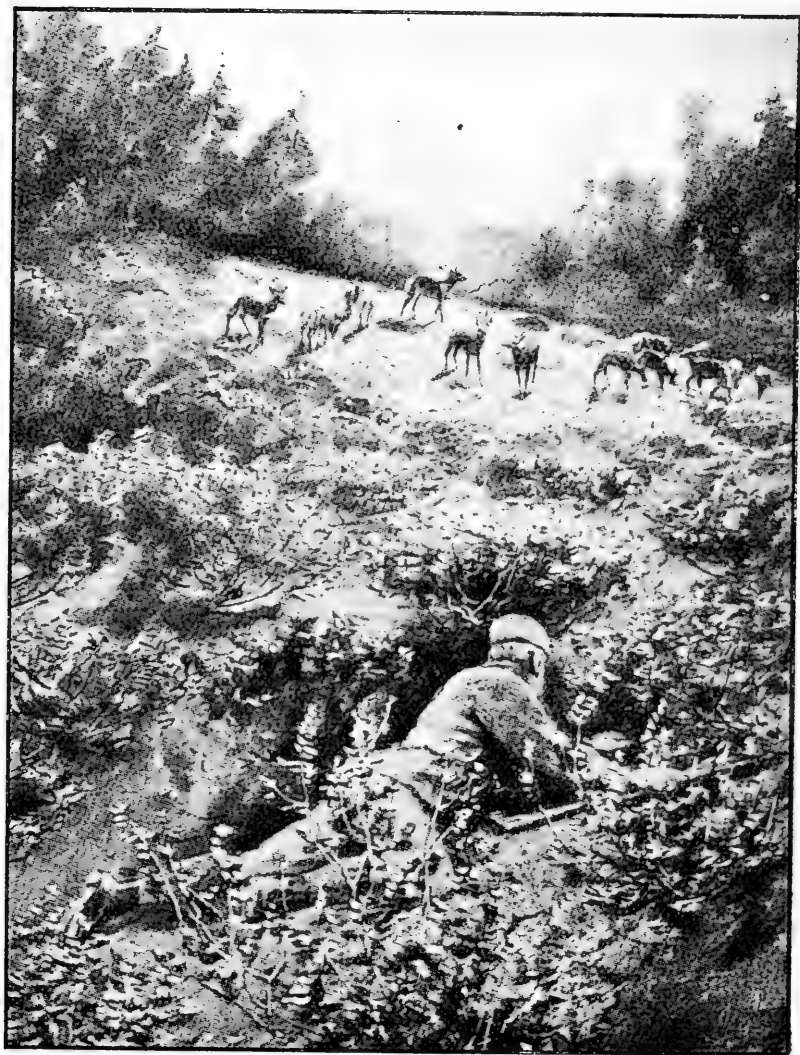
The sound of the woodpecker's drumming, the croak of the bull-frog, the chirp of the squirrel or prairie dog, are sounds and signs, but not language, for when they really communicate to each other, not distant away, there are none or but few sounds, all signs instead. The scream of the panther, wolverine, mountain cat or lynx in the dense woods are but distant calls and expression likewise, for they do not indulge in them ordinarily when together.

Another thing I desire to call attention to is the fact that the intelligence of wild animals is, in many instances, of much deeper extent than we actually realize. And from a wild animal standpoint their powers of discernment and discrimination are far greater than ordinarily we imagine or infer them to be, simply because we don't understand them or their ways, as we should, or as they do ours.

Take the dog or cat, as an instance; I will put it to you this way. I claim that they can even feel or perceive knowledge of your absence or presence, within or about their vicinity, when you are not actually seen by them, and that they can even, by familiarity with certain of your habits, anticipate the time of your departure or arrival home, especially if your habits are regular, for then do they anticipate not only your actions, but your intent as well, and in your conversation with others in their presence they can tell whether or not they are talked about, whether your remarks are made in jest or earnest, and are capable of judging even if you're angry or good-natured; whether you mean what you say or not, and other things of a surprising nature.

The Blue Color of the Sky is believed to be caused by the reflection of the smaller waves of light, viz., the indigo and blue, from very minute particles scattered throughout the sky. The diffusion through the air of small opaque particles of any substance capable of reflecting light will impart to it a bluish tint.

STALKING BIG GAME



A Secret of the Hunter's Success.

TRICKS IN GUIDING AND SCOUTING AND HOW TO STALK GAME, ETC., ETC.

How to Hide Yourself

When you want to observe wild animals you have to stalk them, that is, to creep up to them without their seeing or smelling you.

A hunter when he is stalking wild animals keeps himself entirely hidden, scouts and hunters stalking game always carry out two important things when they don't want to be seen.

One is—they take care that the ground behind them, or trees, or buildings, etc., are of the same color as their clothes.

And the other is—if an enemy or a deer is seen looking for them, they remain perfectly still, without moving so long as he is there.

If wearing dark clothes get among dark bushes, shadows of trees or rocks, shade of dark ground. If light clothing, choose the ground beyond the shade or shadows. Keep perfectly still, and creep or crawl when every opportunity affords; watch and wait for your chance to sneak up a few yards or so at a time. If you can get closer by a circuitous route take it—if the wind is not in your way; only never show yourself on the sky line. If you are observed don't move or blink—keep still, and you will reassure them. To dodge or disappear would be suspicious. If they are watching you remain quiet, and they will think your head, or body part is a stump or rock. In peering over a hill or rock raise your head inch by inch; **lower** it the same way. Never raise or lower it suddenly.

When hiding behind a big stone or mound, etc., they don't look over the top, but round the side of it.

When stalking one should wear moccasins and walk lightly on the ball of the foot, keeping the heels off the ground, so as to be shod with silence. In looking over an object remember any quick or sudden movement of the head on the skyline would be very liable to attract attention, even at a considerable distance.

At night keep as much as possible in low ground, ditches, etc., so that you are down in the dark, so that anything that comes near will be visible to you outlined against the stars on higher ground.

Remember always that to stalk a wild animal you must keep down wind of him, even if the wind is so slight as to be merely a faint stir.

Before starting to stalk you should be sure which way the wind is blowing, and work up against it. To find this out you should wet your thumb all around with your tongue, and then hold it up and see which side feels coldest, or you can throw some light dust, or dry grass or leaves in the air and see which way they drift.

Take your time; never hurry or get excited. The game will not leave unless you scare or drive them off. If they observe you at all you will have to be mighty careful and make a direct change of direction from some other vantage point. If they run don't follow them, it's useless and only drives them out of that territory or vicinity, as once scared they travel miles to some cover and hide, and are wary for days after. Better postpone the effort or seek others.

How to Find Direction

If you have not a compass the sun will tell you by day where the north is, and the moon and the stars by night.

At six o'clock in the morning the sun is due east, at nine o'clock he is southeast, at noon he is south, at three o'clock in the afternoon he is southwest, and at six o'clock he is due west. In winter he will have set long before six o'clock but he will not have reached due west when he is set.

Finding the North

To find the south at any time of day by the sun—hold your watch flat, face upwards, so that the sun shines on it. Turn it round till the hour hand points at the sun. Then, without moving the watch, lay the edge of a piece of paper or a pencil across the face of the watch so that it rests on the center of the dial and points out half-way between the figure XII and the hour hand. The line given by that pencil will be the true south and north line.

Additional Hints on Mountain Travel.

In order to successfully travel the mountains, it is necessary to understand their complete "make up" and to know how to skillfully follow the divide. When the divide separates the waters of two streams not uniting with each other it is known as a principal divide, and always affords the best route of travel.

The sides of canyons and ravines are frequently so precipitous that it is neither advisable nor possible to cross them; and although it is sometimes easy traveling along the bottoms (the level land enclosed between the sides), when ~~not~~ too narrow and rocky, the best route will, considering all things, be found along the divides. Such a route is frequently long and crooked, but it is a good one.

Suppose it be required to pass from stream to stream, parallel to it, but separated from it by very high and broken mountains.

To accomplish this most expeditiously, follow up the stream to where we will suppose a tributary of the stream puts in. Now if there be a good route, apparently, over the divide above this tributary, turn to the right and follow it, until the principal divide is reached. The route, if practicable, may be taken along the bottom, should water be desirable, as far as necessary and then the divide may be taken. Having reached the principal divide, pass over it and descend by any suitable and practical divide as leading from the principal divide, to the other stream. It will be found that all the divides lead to the principal divide, and hence there will be no doubt as to finding the principal divide; but it will often require good judgment in selecting the most practicable divide leading to it. It will be still more difficult to select the practicable divide in descending, as all appear more or less practicable from the summit. The innumerable cul de sacs, met with in descending, can only be avoided by exercising great caution. In every case the divide selected should separate tributary ravines of two important tributaries of the stream. In a great many cases these ravines overlap each other and render the route very sinuous.

It is recommended to follow game trails, when discovered, in passing from one stream to another. They usually follow the most direct and practicable route over a fair divide. When arriving at the steep edge of a ridge, and where difficulty in finding a good trail is anticipated, it is a safe rule to descend first, on foot, and seek a trail for the command or train as you climb back again. It is much easier to make this selection while ascending than while descending; for when at the bottom of a hill, its bluffs and precipices face you, so that they may be readily avoided, but when at the top of the hill these parts are overlooked and not seen, until closely approached.

The investigation of ravines is the exact reverse of that of the divides; but localities are much more readily lost when the ravines proceed thence in various directions. On crossing a divide and coming upon a system of ravines leading to a different principal ravine, the traveler should make very sure of his course and frequently take the bearings of the most prominent landmarks.



PLAINSCRAFT, WOODCRAFT AND MOUNTAIN TRAVEL

Hints to Sportsmen

The sportsman can, if need be, in stress of accident or misfortune, forego nearly every appliance of civilization, and having learned the ways of the savages, live and enjoy life as the savages do. The skins of animals he slays, or the bark of the birch or the hemlock will make him a shanty; pieces of fresh peeled bark supply him with cups and plates which need no washing after use, as they are thrown away. Cedar roots and tough long grasses supply twine and rope, a spindle of hard dry wood rapidly revolved with the hands upon a piece of soft pithy wood, or with an ordinary bow with a single turn of the string around the spindle, will obtain a fire; he can bake his fish and bread in the ashes and broil his meat on a stick; and provided he has only sufficiently warm clothing, a trusty gun, a hatchet, knife, matches and compass, he has the measure of his necessities full.

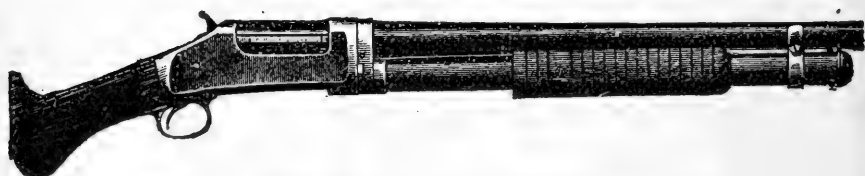
OUTFIT OF CLOTHING FOR ONE YEAR

3 pairs heavy wool blankets.....	\$20.50
2 pairs pack straps, \$3; 1 hand ax, \$1.....	4.00
2 pairs three-quarter size boots, leather soles, \$6.....	12.00
2 pairs high top lace shoes.....	7.50
4 pairs German socks, 75c.....	3.00
2 pairs lumberman's rubbers.....	3.00
2 pairs suspenders75
4 suits heavy wool underwear.....	12.00
4 dark blue flannel overshirts.....	8.00
4 pairs Mackinaw pants.....	11.00
2 Mackinaw coats	6.00
2 blanket coats	8.00
12 pairs socks, wool.....	4.50
6 pairs wool mittens.....	3.00
A few yards mosquito netting and towels.....	1.00
1 buckskin pouches	5.00
1 magnet, 50 cents; 2 pairs goggles, 50 cents.....	1.00

Types of High and Medium Grade Shot Guns.



Automatic Ejector—"Hammerless" Shot Gun.



The Repeating Shot Gun.



High Grade "Hammerless" Shot Gun.



Medium Grade "Hammer" Shot Gun.

2 pairs snow glasses	1.00
1 dozen bandana handkerchiefs.....	1.00
1 lot spoons, knives and forks.....	1.35
1 butcher knife75
4 oil blankets	6.00
1 lot buckets, pans, cooking utensils, etc.....	3.35
1 41 Colt's revolver and ammunition.....	15.00
1 Winchester rifle and ammunition.....	18.00
2 fur caps	2.50
1 Short Gun and Ammunition.....	15.00
1 Tent, 10 or 12 oz. Duck.....	18.00
2 Canteens and Slings.....	3.00
1 First Aid Pack and Medicine.....	2.00
1 assortment traps	20.00

(Various sizes and grades.)

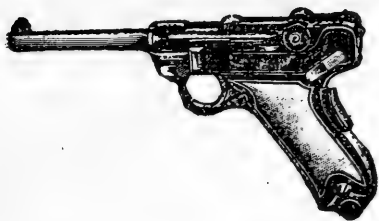
2 Skinning and Fleshing Knives.....	1.50
1 Repair Kit and Contents.....	3.00

Ration Outfit for Two Men for One Year

(With costs approximated.)

4 barrels best flour, at \$6.....	\$24.00
200 pounds granulated sugar, at 6 cents.....	12.00
200 pounds navy beans, at 4 cents.....	8.00
100 pounds of corn meal.....	2.75
250 pounds of breakfast bacon, at 12½ cents.....	31.25
75 pounds of island rice, 6 cents.....	4.50
2 cases condensed milk.....	17.50
20 pounds salt.....	.35
25 pounds best Mocha and Java coffee.....	8.75
10 pounds best tea.....	4.50
8 pounds soda70
20 pounds baking powder.....	9.20
25 pounds dried apricots.....	2.50
25 pounds dried peaches.....	2.50
25 pounds dried apples.....	2.25
2 boxes candles	5.00
1 box pepper, 25 cents; soap \$1.....	1.25
3 boxes yeast, 25 cents; one-half tin matches, 50c.....	.75
1 Yukon stove complete.....	6.00

Types of Automatic Magazine Pistols and Revolvers.



The Luger Automatic Magazine Pistol. 30 Calibre—8 Shot. Range over 500 yards.

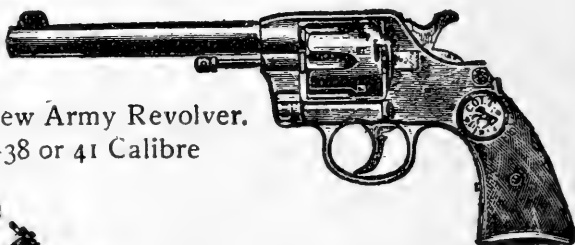


The Colt Automatic Magazine Pistol. 38 Calibre—7 Shot.



Smith & Wesson's Revolver.
New Departure Hammerless, Double Action.
5 Shot; 32 or 38 calibre.
3, 4, 5 or 6 inch barrel.

With Safety Attachment.



Colts' New Army Revolver.
6 Shot—38 or 41 Calibre



Smith & Wesson's Revolver.
Hinge Pattern,
Double Action
5 Shot; 32 or 38 calibre.

Automatic Ejector.

1 double-bladed ax complete.....	1.50
13 oil sacks, 50's and 100's (rations).....	7.55
1 coffee mill, 35 cents.....	.35
12 pounds condensend onions.....	5.00
10 pounds evaporated spuds.....	2.50
40 pounds rope	5.00
Toilet soap50
6 tin plates, 50 cents; 3 granite cups, 50 cents.....	1.00
1 coffee pot, 40 cents; whetstone, 20 cents.....	.60
Awls, shoe thread, wax, bristles, etc.....	1.00
2 Fry pans, \$1; fish line and hooks, 50 cents.....	1.50
6 assorted files, 60 cents; oil blacking, 50 cents.....	1.10
1 package chocolate30
2 miner's candlesticks	1.00
24 pounds raisins, 10 cents.....	2.40

TO BOIL WATER OR COOK IN A BLANKET

Take a rubber Poncho blanket, or even a woolen one, and fold it into several thicknesses; dig a small hole in the ground and set your blanket in the space dug, depressing the center so as to fill the hole. Lay a few stones on the edges to hold the corners of the blanket in position. Heat some smooth round stones—large ones—and when all ready fill your **blanket lined hole with water** and drop in hot stones until the water and contents is boiling. The writer has cooked venison, meat, fish and chowder excellently by this plan when without utensils, and many a time used this device for washing dirty clothes. Several thicknesses of good woolen blanket will hold water like a tub. If in a birch bark country, large sheets of birch bark will answer the purpose admirably if the hole in the ground is lined with them in successive layers. One needs simply to tax his ingenuity to make a very successful lining for the pit or hole in the ground. The Esquimaux, Indians and the Laplanders of northern Norway, from whom the author learned this trick, use a reindeer hide and cook excellently large quantities of meats thus—the hairy side of the animal skin being, of course, at the bottom. It is a very simple, crude trick, but its effectiveness is remarkable. Indians also use this device whenever they tan hides or skins, using the larger hide as the vessel.

LONG AND SHARP SIGHTEDNESS

The man who can walk about the lawn or in the park and pick up four-leaf clovers has an eye that is worth big money to him. He can easily be trained to see things that the ordinary man will miss, or have to look a long time to find.

Some men who go hunting can see a squirrel in an oak or hickory tree with apparent ease, while others will go strolling about the timber and never see the game at all. It is the same way in the open field. The rabbit can be found sitting by some while others will almost run over the creature before they are detected.

This ability is a gift. This is not only a gift developed by some and undeveloped by others as a result of their surroundings, but it measures the exact amount of intelligent effort they have expended in attaining this ability, also their prescience in this line of endeavor.

Hence to obtain this gift one must train the eye to searching for small game—such as squirrels and a day in the woods without any weapons oftentimes repays one who will devote time and attention to familiarizing himself with the habits and peculiarities and knack of sighting game under the very conditions of their daily existence.

The Best All-round Gun

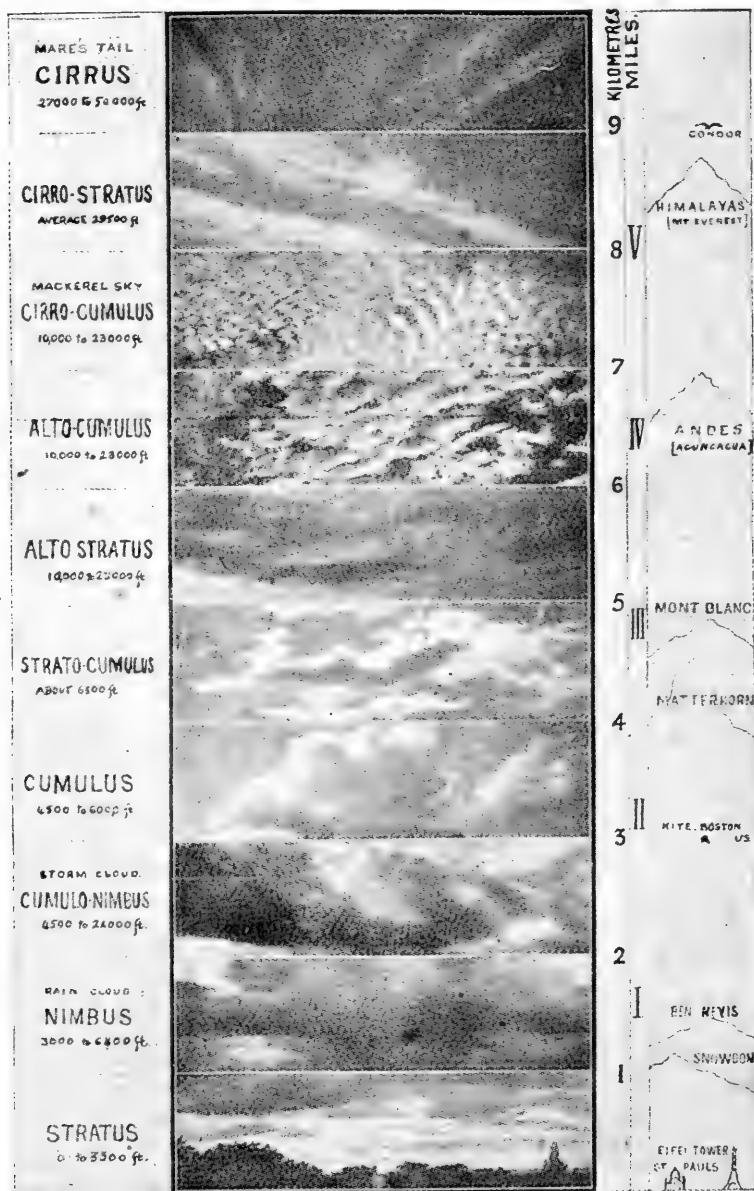
Apropos of arms, I have repeatedly said, here and elsewhere, that in my opinion the handiest and most serviceable gun for all-round work is a 12-gauge of high grade, and not heavier than seven and one-half pounds. I have been pretty sharply criticised for this, especially 'tother side the salt bath—but that doesn't matter. Your British sporting editor is a good fellow, and conscientious withal, and he knows a lot about British affairs, and occasionally, quite a lot about American affairs. I am a great admirer of the typical British sportsman, and would welcome ten thousand of him this side. I respect his gameness, honesty, and skill; but at the same time I do not overlook the fact that there are plenty of excellent judges of American affairs within range of this burg. I favor the 12-gauge for all-round work here, not because it's the only size I have used and know anything about, but for several other reasons, one of which is

a very fair knowledge of 14's, 16's, and 20's. Any well-informed sportsman knows that good small guns are hard shooters and easy to handle, but that is not the all-important point in a country where the great majority of sportsmen pin faith to one good all-round gun and seek their sport, it may be, hundreds of miles from a dealer who handles shells smaller than 12's. Not long ago a pair of us went into Pennsylvania—an easy stage from New York—for a day with quail and grouse. We reached our destination, a small village, shortly after sunrise, and, unfortunately, the shells were left in the car. The one local shopkeeper had sold out, and at that moment was fuming over delayed supplies. For a bit it looked like a wasted trip, but the guide trotted away, and in fifteen minutes returned with plenty of shells, which he had borrowed from some of his acquaintances. Outside of a sample on a card in the shop, there wasn't a shell smaller than a twelve within a radius of twenty-five miles. A lost package would have meant the ruination of a hard-earned holiday for the man using a smaller gun. So far as I can see, the sole advantage of the smaller gun lies in a trifling reduction of weight in arm and shells.



WEATHER OBSERVATIONS

Or How to Become Weather Wise.



A Study in Cloud Effects

The following indications of the character of approaching weather changes are afforded by local observations of the wind and the barometer:

When the wind sets in from points between south and southwest and the barometer falls steadily, a storm is approaching from the west or northwest, and its center will pass near or to the north of the observer within twelve or twenty-four hours, with winds shifting to northwest by way of southwest and west. When the wind sets in from points between east and northeast, and the barometer falls steadily, a storm is approaching from the south or southwest, and its center will pass near or to the south or east of the observer within twelve to twenty-four hours, with winds shifting to northwest by way of north. The rapidity of the storm's approach and its intensity will be indicated by the rate and amount of the fall in the barometer.

A. Upper Clouds, Average Altitude a Little Over Six Miles

Cirrus (Ci.).—Detached feathery clouds usually white, often arranged in belts with an effect of perspective, converging toward one or two points on the horizon. The Ci. and Cu. often take part in forming such belts.

Cirro-stratus (Ci.-s.).—A fine whitish sheet, sometimes completely covering the sky, sometimes appearing like a tangled web. Often produces halos around the sun and moon.

B. Intermediate Clouds

Cirro-cumulus (Ci.-cu.).—Small globular masses, arranged in groups or often in lines—"mackerel sky." Average altitude, 4 to 6 miles.

Alto-cumulus (A.-cu.).—Dense globular masses of white or grayish cloud, arranged so closely in groups or lines that their edges meet. They often pass into S.-cu. at the center and at the edges into Ci.-cu. Average altitude, $1\frac{1}{2}$ to 2 miles.

Alto-stratus.—A thick sheet of bluish or grayish cloud, exhibiting a bright patch near the sun or moon. It does not cause halos, but sometimes gives rise to coronae. Altitude, 3 to $3\frac{1}{2}$ miles.

C. Lower Clouds

Strato-cumulus (S.-cu.).—Large masses or balls of dark cloud, seen oftenest in winter, frequently covering the whole sky and giving it a wavy appearance. Blue sky can often be seen through breaks in the cloud. It can be distinguished from nimbus by its globular appearance and from the fact that it **does not bring rain**. Altitude, 9,400 to 7,800 feet.

Nimbus (N.) Rain Cloud.—A thick layer of dark clouds, shapeless and with ragged edges, from which **rain or snow falls**. Through openings in these clouds cirro-stratus or alto-stratus can usually be seen above. When broken into shreds, it is called fracto-nimbus; scud, by sailors.

D. Clouds of Diurnal Ascending Currents

Cumulus (Cu.) Wool-pack Clouds.—Thick clouds, with dome-shaped upper surfaces, which show protuberances, and horizontal bases. These clouds appear to be formed by a diurnal ascensional movement which is almost always apparent. When the cloud is opposite the sun, the surfaces seen by the observer are brighter than the margins of the protuberances. When the light falls from the side, these clouds give deep shadows, but if on the same side of the sun, they seem dark, with bright edges. Altitude, about 1 mile.

Cumulo-nimbus (Cu.-n.) Thunder Cloud, Shower Cloud.—Heavy masses of cloud, rising like turrets, anvils, or mountains, generally surrounded at the top by a sheet of fibrous appearance—"false cirrus"—and with a mass similar to nimbus underneath. **From the base usually falls local rain or snow, sometimes hail or sleet**. Altitude (of upper part), 6 to 10 miles.

E. High Fogs

Stratus (S.).—A horizontal sheet of lifted fog. When broken into irregular shreds by the wind, it is sometimes called fracto-stratus. Altitude, less than $\frac{1}{2}$ mile.

WEATHER SIGNS, ETC.

ART OF FORETELLING WEATHER CHANGES

Guides, scouts, etc., should bear in mind that, while **General Weather Conditions** can be foretold, no hard and fast rules can be laid down for any **particular locality**. For instance, one might say there is every prospect of a storm approaching, and yet it may not affect the particular locality you are apt to be in. It might pass within a radius of a few miles from where you are, and while there was every **visible indication** that it would strike or affect your locality—there is nothing certain about it—the same rule applies in an opposite sense, as frequently a region that has every indication of being immune, or **out of the path of the storm**, by some change which it is impossible to **correctly foretell**, becomes affected or perhaps the center of change. That is why the experts of the Weather Bureau often fail (or are supposed to fail) in their predictions. Hence, in this chapter I shall dwell upon the subject in general and give the reader a host of well known signs from which one can gather a lot of unusual important ones, viz:

Rain before wind—is the sign of a storm behind.

Wind—Rain—indicates fine weather to follow.

Slow, drizzling rains—last long; sudden showers are short.

Morning thunder—betokens strong winds.

Noon thunder—indicates rain storms.

Evening thunder—precedes a tempest change.

(By these signs one can anticipate fairly.)

Much thunder, much rain; little thunder, little rain; no thunder, but gradual assembling of rain clouds, sign of much wet weather to come.

When mules or horses frequently bray, snort or sneeze, you may expect weather changes.

When bats are astir early or late fine weather is indicated.

When bulls lead the cows to pasture and are restless to get out, look for rain. If the cows lead, moderate sign. When they sniff the air, crowd together, expect a storm.

When goats, sheep or cows reluctantly leave the pasture expect rain.

Cattle—sheep—eat greedily before a storm; sparingly be-

fore a thaw. Feed up hill in wet weather, down hill in dry weather.

Observe which way a hedgehog builds a nest—if it faces North, South, East or West.

For the winds will blow, and the storms do go
The contrary way, I'll have you know.

Pigs squealing, running about with hay or straw in their mouth, foretells storm, rain or change.

When ducks and chickens are restless, pick and prune at their feathers, look out for rain.

When fowls roll in dirt or sand, rain at hand.

When roosters crow as they go to bed, change of weather.

When birds fly high and sing long, sign of fair weather.

There is a greater tendency to rain when the moon is in the quarter after full moon, especially with the moon in Perigee.

Northerly winds are prevalent in the last quarter.

Southerly winds are prevalent in the first quarter.

When the Rain precedes the Wind,
Topsail sheets and the Helm mind;
But when the Wind precedes the Rain,
Hoist your Topsails up again.

Mountain winds blow up mountain during the day, and down at night.

WIND FORCE TABLE

Calm	0 to 1 mile per hour
Light air	2 to 3 miles per hour
Light breeze	8 to 10 miles per hour
Gentle breeze	10 to 15 miles per hour
Moderate breeze	15 to 20 miles per hour
Fresh breeze	20 to 25 miles per hour
Strong breeze	25 to 30 miles per hour
Gale	30 to 40 miles per hour
Storm	50 to 60 miles per hour
Hurricane	60 to 90 miles per hour

LAND AND SEA BREEZES

As a rule wind blows from sea to land at day, and from land to sea at night.

INDIAN MOONS. The Indian recognizes each lunar change as follows:

January, **Winter Moon**; February, **Windy Moon**; March, **Waking Moon**; April, **Wet Moon**; May, **Mulberry Moon**, **Medicine Moon**; June, **Blackberry Moon**; July, **Little Ripe Moon**; August, **Plenty Ripe Moon**; September, **Chestnut Small Moon**; October, **Big Nut Moon**; November, **Falling Leaf Moon**; December, **Cold Moon**.

They also refer to them as Storm Moons, Moults or Shedding Moon, Fish Moon, Egg and Bird Moon, Medicine Moon, etc., etc.

When poplar, cottonwood, maple and willow leaves show their under sides, rain will follow.

If on the trees the leaves still hold,
The coming winter will be cold.

For early blossoms bear little fruit; late blossoms plenty.

Plenty acorns or berries, plenty winter.

Trembling aspen leaves in calm weather, change is coming.

Scales of Pine Cones open in dry weather, close in wet.

Corn or Indian Fodder, when dry and crisp, dry weather.

When damp and limp, look for rain.

Corn Husks, thick or thin, betoken cold accordingly.

Dandelion Blossoms close before a storm or change.

Corns, old wounds or sores itch before rain.

Rheumatic pains increase or decrease likewise.

Nervous, irritable persons, are likewise affected by changes.

Salt and soap dishes sweat before rain.

Fires burn bright or dull, according to the weather.

Smells are more offensive before rain; less afterward.

When pigs and critters play in mud there is no fear of a flood.

Rooks tremble at approach of rain or change.

Crows, ravens, jack-daws calling late indicate storms; calling early, fair weather.

When Plover pipe and shrill and fly high, good weather.

When woodpeckers get busy, expect rain.

If owls hoot at night, good weather to come.

When robins rest high and call, good sign; if silent and restless and rest low, bad weather is to come.

When the smoke of the camp-fire hangs low and does not ascend, expect rain or sudden change.

When the smoke ascends straight up, fine weather.

When animals venture not to roam,
But hug the spots about their home,
'Tis a sign that weather changes are near;
But when they travel, and to distance go—
They know 'twon't neither rain nor snow.

WHAT THE BIBLE SAYS ABOUT WEATHER SIGNS

"When ye see the south wind blow, ye say there will be heat; and it cometh to pass."—St. Luke 12:55.

"When ye see a cloud rise up from the west, straitway ye say there cometh a shower, and so it is."—St. Luke 12:54.

"When it is evening ye say it will be fair weather, for the sky is red; and in the morning it will be foul weather, for the sky is red and lowering."—St. Matthew 16:2-3.

In Job 37:27-35, we are told of the signs by spreading of the clouds, as laid down in this Book, and of the fact that cattle judge by the vapor, air or noise of approaching storms.

Pale evening sunset indicates rain.

When birds fly low, look out for wind or rain.

When birds fly high it is a sign of fair weather; when insects bevy abroad and fly high also.

When snipe drum and strut, dry air, good weather.

When starlings and crows gather together, wet weather.

When swallows fly low and near the water, rain.

When swans or geese fly against the wind, strong winds from the direction they fly.

Wild geese or swans going to water, fine weather.

Unusual silence before thunder or rain means a storm.

Thunder in the morning, wind; at noon, rain; at evening, tempest changes. After much thunder expect much rain.

Comb clouds, in the form of hen-scratches or mares-tails, indicate strong winds.

Salmon or fish-like clouds, ark shape,—in east or west—strong winds. North or south, fine and moderate.

Look for changes in the weather at changes of the moon.

When birds they play in flocks together, good weather.

Magpies, one alone, weather's bad; two together, weather's good.

Owls scream in bad weather or at night; change.

LIGHTNING SIGNS. With north wind, west rain. North and southwest, wind and rain; otherwise fair.

WINDS OF THE DAY—wrestle and fight longer and stronger than those of the night.

Rain before wind, indicates bad weather; wind before rain, fair weather.

West winds are favorable to wet weather or showers.

East winds, cold and wet together.

South winds, bring heat and thunderstorms.

But **North winds** blow them back again.

Northwest winds, bring the finest weather.

But when the winds are in the east, it's fine for neither man nor beast.

Mackerel sky, neither wet nor dry; changeable.

Low clouds indicate rain; **high clouds**, moderate winds.

No clouds, fair weather; **all clouds**, storm or change.

When birds fly high, fine weather sends insects out; and they rarely fly high except in light weather.

Clear signs at sunrise or sunset—clear day, or vice versa.

Rain before seven, quits before eleven.

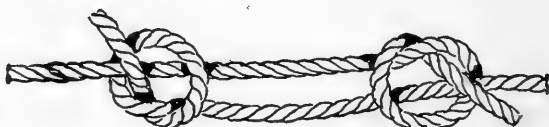
When atmosphere is clear and unclouded, when distant objects seem near, skies cloudless, stars very bright watch out for changes; especially when owls hoot, crows caw, birds and insects fly low, flies and ants bestir themselves to hunt food—expect rain.

Changes in the weather at mid-day are usually of duration.

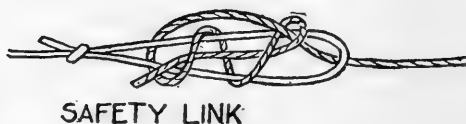
Sudden changes of temperature, change of the weather.

As one reads faces, so can weather signs be read by their signs.

Sailors' Knots, Bends and Hitches



Garrick bend



The tying of knots is accomplished by practice, not explanations :: ::



Knots and Hitches for the Angler's Practice

PLANTS WHICH ARE WEATHER PROPHETS

Clover and chickweed expand their petals or leaves before fine weather, and close them before bad weather.

If the down on coltsfoot, dandelion, thistle, etc., flies off in the wind expect rain; if on the dandelion it closes up, rain also.

Marigolds close up before a storm; flowers and blossoms generally so.

Many oak acorns, long hard winter; otherwise accordingly.

Onion skins, thick and rough, hard winter; thin, mild.

Pimpernel flowers, close, sign of rain.

Sow thistles, open at night, rain next day.

Fuller thistle (Teazle) closes before a rain.

Wood sorrel contracts its leaves, rain is near.

Thistledown, cotton-wood down—whisking about—windy weather to come.

Endive plants open petals at 8:00 a. m., close at 4:00 p. m.

Goats Beard opens at sunrise, closes at noon.

Four o'Clocks, open 4:00 p. m. to 4:00 a. m.

Halos and Coronæ are rings of prismatic colors surrounding the sun and moon.

Halos are caused by the presence in the air of small crystals of ice or snow. **Parhelia**, or mock suns, and **Paraselenæ**, or mock moons, are frequently seen where the complicated circles of halos intersect each other. Here bright spots occur, which somewhat resemble suns and moons. **Coronæ** are similar circles, seen most frequently around the moon. They are caused by the presence of a small quantity of condensed vapor in the air. They generally indicate changes in the weather.

Anglers' and Fishermen's Knots, etc.



The Jam knot



TO MAKE SINGLE EYE KNOT



DOUBLE EYE KNOT

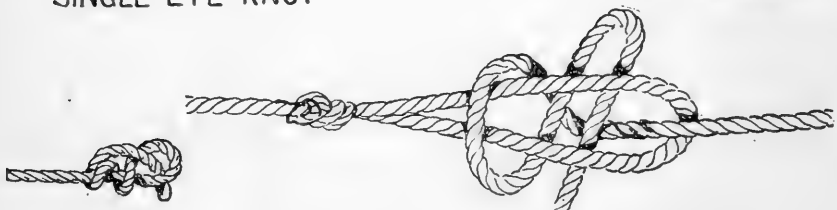


Square knot

The Jam hitch



SINGLE EYE KNOT



The Tiller hitch



BOWLINE KNOT



SAFETY LINK



SAFETY FIGURE OF EIGHT



DOUBLE SHEET BEND

STILL OTHER WEATHER SIGNS

Dew is only deposited in comparatively clear and calm nights; fair weather—not in cloudy or windy weather. When temperature is below 32, dew freezes and frost is produced.

Currents of air are often mistaken for light winds; at those times the wind proper is in the opposite direction of these currents of air. Hence, observe this fact.

Winds in open country or plains are fairly steady and reliable. As one approaches hills, valleys, woods, currents of air are often mistaken for winds; hence, are deceiving.

Changeable winds indicate and precede weather changes.

A halo around the moon indicates wet weather to come, and the smaller or larger circles indicate its nearness.

When smoke hangs over in a pall and does not ascend, it signifies weather changes. Straight ascent, clear, fine weather.

Morning dew and fog means fine weather to come.

Northwest winds precede fine, steady weather or winds.

Clouds moving in different directions indicate thunder and rain.

Lightning in the east, sun will be red; in the west, showers; south rains, north winds.

When moon's face pale or red it be, for wind and water sure look ye.

If its crescent is turned to hold water, dry 'twill be.

If the reverse, wet we'll see.

If the sun precedes its rays, 'tis a sign of pleasant days.

But if the ray precede the sun, then look out for change to come.

Moon circles near, a storm or change to fear.

Circles more, change galore.

A toad or frog in a glass jar is a good weather barometer.

Put a few stones in center of bottle, so that he can climb up or down. In fine weather he will come ashore; in bad weather or rain, take to water again.

When bees to distance wing their flight,

Days are warm and skies are bright.

But when flight ends and they stay to home,

Their own good sense forbids them roam.

When ants their holes rebuild and strengthen,
 Rain will be sprinkled or its fall be lengthened.
 When they search for food—work early and late,
 'Twill storm and rain as sure as fate.
 When they scatter abroad—'tis a promise fair,
 And they leave their holes open and go off by pair.
 But when they're all coming, and none do depart,
 Why, they close up their holes, bless their wise little
 hearts.

Hornets, bees, wasps, nesting in exposed places, fair, dry weather; in sheltered places, **moderate**; on high banks, **wet**; on low banks, **dry**.

When bees stay home, rain is near; when they all leave, expect fine weather. (Bees are seldom caught in a shower.)

When flies and gnats cling to the ceiling or disappear, look for a rain. Spiders go into sheltered spots and waterproof their nests.

Spiders work hard before winds or storms. If they build short, strong webs, it indicates rain and wind. If long webs and frail ones, fair weather. It is a sure sign of fair weather when they spin long new threads or webs.

If they work in wet weather, it will soon be dry again, and the prospect for immediate change is sure.

Insect swarms bode good, fine weather.

Fireflies flit, beetles travel together.

The locusts' and crickets' voices are heard,

The midges and punkies play tag for the birds.

But when skeeters and flies begin to bother and bite,

Seek warmth and shelter, swarm around lamps and light,

A change in the weather will come very soon,

Just as sure as the changes are seen in the moon.

Fine Weather Signs:

Red sunset.

Early fog or dew:

High, soft clouds.

Blue, clear sky.

Wind Signs:

Hard edge clouds.

Rolled or jagged clouds.

Rapid moving clouds.

Rain Signs:

Red sunrise.

Pale yellow sunset.

Clouds from the west.

Moving, gathering clouds.

SPECIAL NOTE

The reader must always bear in mind that oftentimes a few miles away it might be raining hard and where you are the weather is fine.

To foretell weather in any restricted or small location is a difficult matter. These signs are general and not local.

FISH WHICH FORETELL WEATHER CHANGES

FISH are unusually active, rise, play and bite well before a rain.

If they play in rough water, sign of calm to come.

FROGS croak much before a rain; when they spawn in deep water, implies drought; in shallow edges, wet summer.

When Glow-worms show their lamp, the air and weather always damp.

Toads and snakes are always active before a rain; so are worms.

When trout or bass refuse a fly, be sure a rain or storm is nigh.

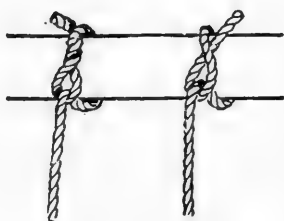
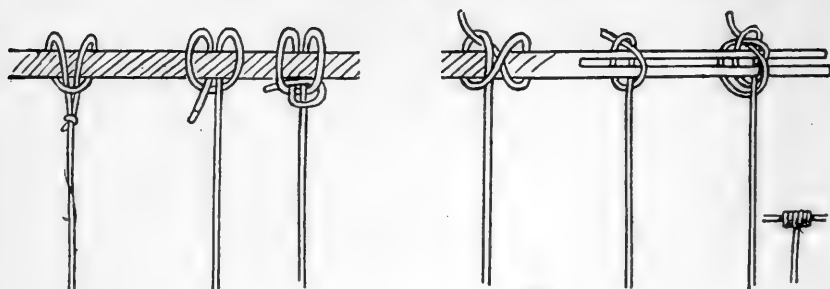
Bass leave shoal water before a rain.

Eels are lively before a rain.

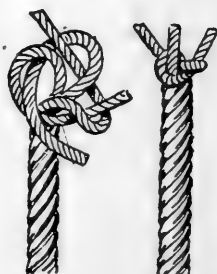
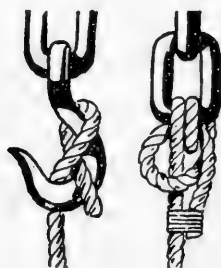
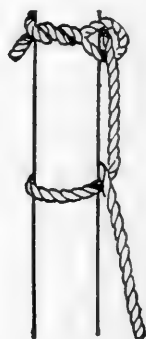
The old time Leech Barometer was considered infallible. By placing a common leech in a bottle half filled with water his movements or actions indicated every change, as follows:

In bottle neck, out of water, **rain**; coiled up, **tempest**; continued movement, **thunder and lightning**; slow movement, **cold**; coming out of water, **change**; moving all about, **strong wind**; coiled upon bottom, **fine weather**.

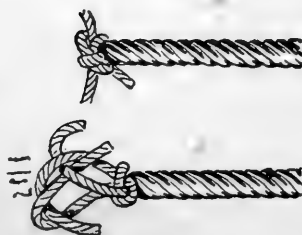
Rope Bends, Hitches, Slip Knots.



Take a cord
and tie them



Useful knots and
bends—simple
rope hitches.



The study of these
knots and
hitches is time
profitably
spent.

Additional Useful Hints

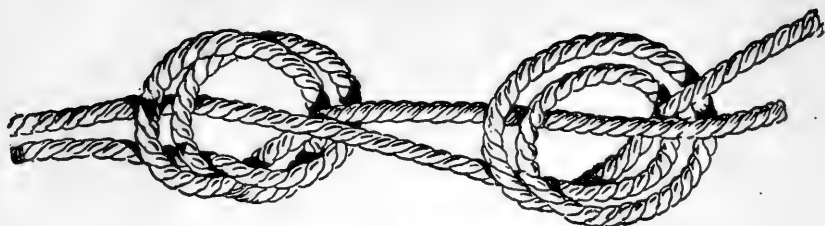
The following information will be found to be of the utmost practical value, on occasion:

Weather Indications—The color of the sky at particular times affords good guidance. Not only does a very rosy sunset presage good weather, and a ruddy sunrise bad weather, but there are other tints which speak with equal clearness and accuracy. A bright yellow sky in the evening indicates wind; a pale yellow, wet; a neutral grey color constitutes a favorable sign in the evening, and an unfavorable one in the morning. The clouds are again full of meaning in themselves. If their forms are soft, undefined and feathery, the weather will be fine; if their edges are hard, sharp and definite, it will be foul. Generally speaking, any deep, unusual hues betoken wind or rain; while the more quiet and delicate tints bespeak fair weather. These are simple maxims, and yet the British Board of Trade has thought fit to publish them for the use of seafaring men.

In Kentucky and elsewhere much reliance is placed upon the "goose bone." It has been handed down among the early traditions of the state, and may be called the Kentucky weather prophet. It is to be found in nearly every Kentucky country home, and in many parts of the state the farmers consult it, and prepare for handling their crops in accordance with its readings. The prophecy of the goose bone does not extend beyond the year in which the goose was hatched and the prediction is for the three winter months only. Take the breast bone of a last spring's goose and divide it into three equal parts, and the different divisions will represent December, January and February. The breast bone of a goose is translucent, and if clear when held up to the light, the weather will be mild and pleasant; but if covered with cloud-like blots, it will be gloomy and cold; the heavier the blots the colder will be the weather.

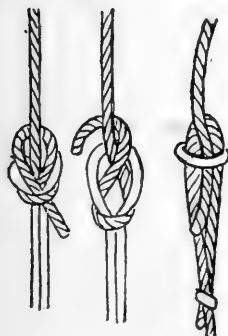
A Good Barometer—Take a common glass pickle bottle, wide-mouthed; fill it within three inches of the top with water, then take a common Florence oil flask, removing the straw covering and cleansing the flask thoroughly, plunge the neck of the flask as far as it will go into the bottle, and the barometer is complete. In fine weather the water will

Water Knots, Hitches, etc.,



No 1.—Double Fisherman's Knot.

Easily tied and
untied



No.2.—Single Water Knot.

Quick, effective,
simple



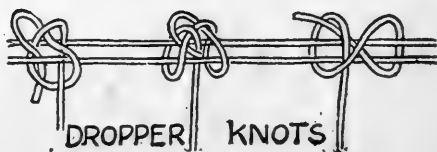
No. 3.—Double Water Knot.



Diamond Hitch



No. 4.—Another Jam Hitch.



DROPPER KNOTS

rise in the neck of the flask even higher than the mouth of the pickle bottle, and in wet, windy weather, it will fall within an inch of the flask. Before a heavy gale of wind, the water has been seen to leave the flask altogether at least eight hours before the gale came to its height.

“A BIT ABOUT WOODS”

Rock Maple

No praise is too high for the excellent tree. As fuel, the rock maple is the best wood available in large quantities at the present moment in the northeastern states. From this tree is derived the sap which when boiled becomes syrup or maple sugar. The tree may be tapped for many consecutive years without injury, and a good maple sugar grove is by no means the least valuable asset of a farmer. The sap only flows in early spring when warm days and frosty nights are the rule, and the first sap is much richer in sugar than the last. The Indian always makes his paddle of rock maple when he can get it, for no wood equals it for that purpose. Axe-handles of rock maple are preferred by the lumberman for heavy chopping to those of ash, though they are not superior to hickory, when the latter can be obtained.

White Maple

Although closely related to rock maple, this is a much inferior wood. The sap is not so sweet as that of the rock maple, the wood is softer and the tree smaller. It may be used as a fire-wood with fairly satisfactory results.

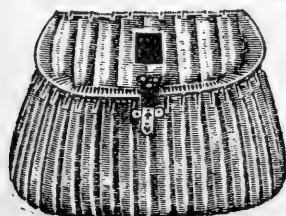
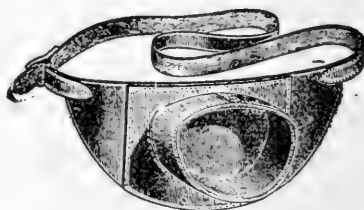
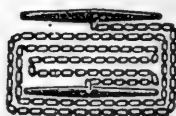
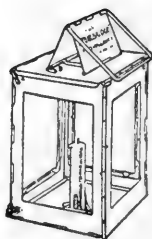
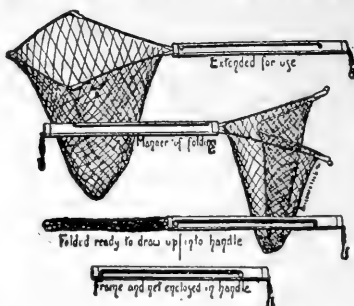
Red Maple

Practically similar to the white maple, and the description of the former will apply to it.

Fir

The fir of balsam is of little use as a wood, though its boughs make the best bed a tired backwoodsman can find. For this purpose the feathery foliage is plucked from the bough and placed in layers with the concave side downward and the butts toward the sleeper's feet. The wood is weak and treacherous,

Fishermen's and Angler's Specialties.



Nets, Baskets, Waders, Capes, Fish Bags, Etc.

breaking suddenly without warning, and the fir makes a poor fire even when dried.

Willow

In the more southern regions of the North the willow is not thought much of, but in Alaska and in the country of the "little sticks," that is to say, where the forest begins to thin out on account of the severity of the climate of the extreme North, the willow is an extremely valuable wood. It makes a fierce fire, burning with a clear bright flame, but owing to the small size of the sticks, the fire needs feeding continuously. In the Northwest the Indians make their snowshoe frames of willow when they can get nothing better, leaving the wood in its natural round state.

Suitable Trout Flies for April

Black Gnat, or Midge, No. 13—Body and feet, black; wings, subhyaline.

Dark Claret Gnat, No. 13—Body, dark claret; feet, black; wings, subhyaline.

Bright Claret Gnat, No. 13—Body, bright claret, mixed with red fox face; feet, ginger; wings of one sex, hyaline, the other, ocherous.

Grey Gnat, No. 13—Body, dark fox, mixed with dark claret; feet, grey; wings, hyaline.

Dark Fox, No. 10 or 11—Body and feet, dark fox, mixed with lemon colored mohair; wings, subhyaline; tail, three fibres of dark grey hackle.

Poor Man's Fly, Nos. 9 and 10—Body and feet, hare's ear and yellow mixed; wings, slightly mottled grey; tail, the mottle of the wood duck.

Olive Gnat, No. 13—Body, dark olive, mixed with bright claret; feet, ginger; wings, hyaline.

Red Fox, Nos. 10 and 11—Body, fox cub face, mixed with yellow; feet, red (chicken red); wings, pale grey or subhyaline; tail, mottled feather wood duck.

Bright Fox, Nos. 10 and 11—Body and feet, brightest part of the fox, mixed with yellow; wings, brightest hyaline; tail, pale yellow.

Black Hackled Fly, Nos. 6 and 8—Body, orange, ribbed with gold tinsel; hackle black wings; tail, of the American partridge.



Hunters and Trappers Taking It Easy.

Trout Flies for May

Black May, No. 10—Body, black; feet, black; wings, hyaline.

Cow Dung, Nos. 10 and 11—Body and feet, brownish yellow; wings, yellow-grey.

Great Dun, Nos. 9 and 8—Body, purple brown; feet, grey brown; wings, dark grey hyaline; setæ, dark brown annulated with grey.

Red Spinner, Nos. 10 and 9—Body, bright claret, ribbed with gold tinsel; feet, brick color; wings, grey hyaline; setæ, pale brick color.

Yellow May, No. 10—Body and feet, pale yellow; wings, pale yellow, mottled with brown; setæ, yellow.

Coachman—Body, peacock herl; feet, dark red hackle; wings, white.

King of the Water—Same as queen of the water, with scarlet body instead of orange.

Gold Spinner—Body, orange, ribbed with gold tinsel; feet, pale red hackle; wings, bright grey.

Captain—Body, posterior half, peacock herl, anterior half, grey; white feet; red hackle; wings, grey; setæ, scarlet, green and wood duck feathers mixed.

Soldier—Body, crimson; feet, red hackle; wings, grey.

Kingdom—Body, white, ringed with green; feet, peacock herl, and red hackle; wings, grey, mottled with brown.

Black Palmer, Brown Palmer, Red Palmer and Grey Palmer, are made respectively of the different colored hackles that distinguish them.

Trout Flies for June

Hawthorn, No. 11—Body, shining black; feet and head, black; wings, bright hyaline.

Shoemaker, No. 10—Body, ringed alternately with light grey and salmon; feet, dark ginger; wings, the mottled grey of the mallard, and the mottled of the woodcock mixed; setæ, mottled woodcock.

Black June, No. 10—Body, peacock's herl; feet and wings, black.

Dark Stone, Nos. 8 and 9—Body, dark brown; feet, yellow brown; wings, luteous.

Governor, No. 10—Body, peacock's herl; feet, dark red hackle; wings made of the darkest part of the bittern's wing, or brown hen.

Green Drake, No. 7—Body, white posterior, half ribbed with black, green-yellow mottled with brown; setæ, dark brown.

Brown Drake, No. 7—Body, feet and wings, a golden yellow brown; setæ, dark brown.

Raven, No. 11—Body, feet and wings, black.

Wren Fly, No. 9—Body, clay-yellow; feet, made from the scapular feathers of the English wren or quail; wings and setæ, mottled widgeon.

Trout Flies for July

Little Egg, No. 12—Body and feet of orange and yellow, mohair and hare's ear mixed; wings, bright hyaline, slightly mottled; setæ, same as wings.

Lightning Bug, No. 10—Body of equal parts, of dark brown, and black mixed, tipped with yellow; feet, of feathers from the English grouse; wings, double, the inner wing black, the outer wing a yellow brown.

General Hooker, No. 9—Body made of bright yellow and green, ringed alternately; feet, red hackle; wings, of the tail feathers of the ruffed grouse.

Little Claret, No. 11—Body and feet, dark claret mohair, slightly tinged with blue; wings, of the bittern or brown hen; setæ, dark brown.

Claret Fly, No. 9—Body, dark claret; feet, black; wings of the brown hen.

Fetid Green, No. 10—Body, feet and wings, a pale blue green.

Trout Flies for August and September

Grey Cofin, Nos. 10 and 11—Body, silver-grey mohair, tipped with orange silk; feet, light grey hackle wound over peacock's herl; wings and setæ, hyaline.

Brown Cofin, Nos. 10 and 11—Body, grey and bright

claret mohair mixed; feet, dark grey hackle wound over peacock's herl; wings and setæ, grey hyaline.

The Gnats, named for April.

Quaker, Nos. 7 and 8; for evening and moonlight—Body, grey wound with honey-yellow hackles; wings, made of feather from an oriole's wing.

White Moth, Nos. 6 and 7; for dark nights—Body, feet and wings, pure white.

The **Stone Flies** continue on the water until the close of the season.

At this season use the small flies for day fishing, and the large flies for evening and night.

General Flies Good at Any Time.

Ibis, No. 8—A hackle fly, ribbed with silver tinsel; body, hackle, wings and tail, scarlet.

Peacock Palmer, No. 8—Body, peacock herls; hackle, black, and red mixed.

Grey Palmer, No. 8—Body, peacock herl; dark grey hackle.

Professor, Nos. 8 and 9—Body, bright yellow; feet, golden brown; wings, wood duck and mallard, dyed yellow, mixed; tail, scarlet ibis.

Queen of the Water, Nos. 8 and 9—A hackled fly; body, orange, ribbed with gold tinsel; hackle, chicken red; wings, bright mottle of the mallard.

Grizzly King, No. 8 and 9—A hackle fly; body, green; hackle, dark grey; tail, scarlet ibis; wings, mottled feather of the pin-tail.

Besides the above, the following are favorite flies:

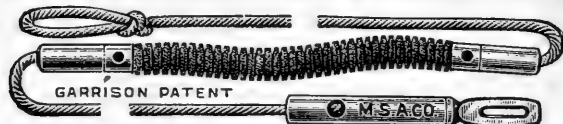
Abbey,—Golden pheasant and red tail, brown hackle, dark grey wing.

March Brown—Brown body, ribbed with yellow silk, brown hackle, turkey wing.

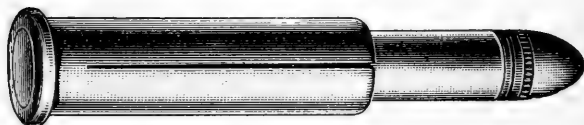
Brown Hen—Peacock body, brown hackle, wild turkey wing.

Silver Black—Black hackle, light black body, ribbed with silver tinsel, dark wing.

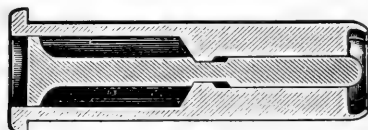
RIFLE AND SHOTGUN ESSENTIALS



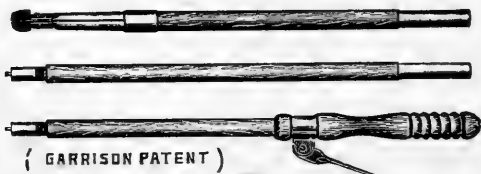
Pocket Rifle Cleaner.



Auxiliary Cartridge Holder.



See That Point.



Combined Shotgun and Rifle Rod.

Oak—Orange body, ribbed with black silk, brown hackle, turkey wing.

Blue Mole—Dark grey body, grey hackle, slate-colored wing.

Silver Grey—Silver body, grey hackle, grey wing.

Orange Black—Orange body, black hackle, dark wing.

May—Yellow body, yellow hackle, yellow wing.

Red Ant—Brown body, brown hackle, light wing.

Montreal—Red body, red hackle, grey wing.

Blue Professor—Red tail, blue body, brown hackle, grey wing.

Cinnamon—Light brown body, brown hackle, brown wing.

Alder—Claret body, black hackle, slate-colored wing.

Blue Bottle—Blue body, black hackle, slate-colored wing.

Allerton—Body, yellow, ribbed with gold; hackle, blue and yellow; tail of wood duck feather.

Also the Blue Dun, Pale Green Dun, yellow spinner, jenny spinner, yellow sally, and, it is said, eight hundred patterns in all. The above will suffice for an assortment; the less used the better, in our opinion.

Other Baits

Helgramite or Dobson—What are known as Helgramites in the south and Dobsons in the north are the fully grown larvæ and pupæ of several aquatic species in the family Sialina. Their feeding ground is chiefly in sluggish rivers. They are rare in mountain streams or head springs. They will be found in the shallow parts of the stream, under stones or submerged driftwood, or buried in the soft mud along its banks.

Fish Roe—Tie a quantity, the bulk of a marble, in a bit of mosquito netting, or secure it to the hook with woolen threads. It can be preserved for a year in equal parts of salt and saltpetre. Cork tight in a bottle, and keep in a cool place. Fresh roe is the best.

Frogs—Izaak Walton says: "Put your hook through the mouth, and out of his gills, and then with a fine needle and silk sew the upper part of his leg, with only one stitch, to the

arming wire, of the hook, and in so doing use him as though you loved him."

To Scour Angle Worms—Place them in sand, and they will clean themselves of earth, and become fresh and red. Raw beef is a good substitute, when worms cannot be got.

To Keep Dead Minnows Fresh—Pack in wet sawdust and salt or brine, adding a little saltpetre. Coarse straw dampened is also a good packing.

Live Minnows—Have made a large bucket, holding say four gallons, with inside bucket small enough to have plenty of play and thoroughly perforated. Place a large piece of ice on top of the inside bucket every ten or fifteen minutes, churn the inside bucket up and down to aerate the water. If the inside bucket is oval on the bottom, it is much better than if it has a flat bottom, as the car or boat will keep the bucket in motion. In this bucket minnows have been transported two hundred miles.

To Keep Shrimp—Put them clean and solid into a box or basket, the latter preferred, and place it on the ice in a refrigerator. We have tried covering with seaweed, mixing with sawdust, meal, etc., but for a handy home method nothing works better for keeping shrimp alive twenty-four hours—a week in fact—than the ice chest. If you are going to carry them some distance before using, it is well to pack the box or basket in ice. If you are located near the water, the best way of all is to have a tight covered basket or a box, full of small holes, so as to allow a free circulation of water, and with the live shrimp therein, anchor it off shore. The Guilford Club, during the smelting season, have always adopted the latter method at Black Rock with perfect success, with the simple difference that the shrimp basket was secured inside a large floating lobster car, and they never were troubled with dead bait, but always found them alive and kicking when wanted.

Artificial Angle Worms—A St. Louis firm has patented an imitation earth-worm, made of India rubber or other flexible material, to be substituted for the live angle worm. It exactly resembles the natural squirmer in color, and certainly possesses the advantages of cleanliness for use. It cannot be taken off the hook by nibbles, and needs no preparatory "scouring."

HINTS, POINTERS, KINKS AND SNARLS

Invaluable Facts and Information

Swimming of a Horse—When swimming a horse never touch the bridle, as a horse is easily drowned when checked up or otherwise interfered with about the head. Sit well back and guide the horse with the hand, gently slapping him on either side as required; thus a horse will swim a mile or more with a full-grown man on his back, and suffer but little. Or, better still, throw yourself from the horse on the down stream side, and with the right hand grasping the mane at the withers, aid the progress of the horse with the other and feet as in swimming.

To Subdue a Horse—Take a cord about the size of a common bed-cord, put it in the mouth of the horse like a bit, and tie it tightly on the animal's head, pass his left ear under the string, not painfully tight, but tight enough to keep the ear down and the cord in its place. This done, pat the horse gently on the side of the head and command him to follow. He will be found perfectly subdued and obedient, the more submissive if he has not been habitually treated cruelly or outrageously. This plan is practiced in Mexico and South America.

To Tell a Horse's Age—The colt is born with twelve grinders; when four front teeth have made their appearance, the colt is twelve days old, and when the next four come forth, it is four weeks old. When the corner teeth appear, the colt is eight months old; when the latter have attained to the height of the front teeth, it is one year old. The two-year-old colt has the kernel (the substance in the middle of the tooth's crown) ground out in all the front teeth. In the third year the middle front teeth are being shifted, and when three years old these are substituted by the horse teeth. The next four teeth are shifted in the fourth year, and the corner teeth in the fifth. At six years the kernel is worn out of the lower middle front teeth, and the bridle teeth have not attained to their full growth. At seven years, a hook has been formed in the corner teeth of the upper jaw, the kernel of the next at the middle is worn out, and the bridle teeth begin to wear off. At eight years the kernel is

Popular Revolver and Rifle Cartridges



See also about Rifles elsewhere.

worn out of the lower front teeth, and begins to decrease in the middle upper front. In the ninth year the kernel has wholly disappeared from the upper middle front teeth; the hook on the corner has increased in size, and the bridle teeth lose their points. In the tenth year, the kernel is worn out of the teeth next to the middle front of the upper jaw, and in the eleventh year the kernel has entirely vanished from the corner teeth of the same jaw. At twelve years old, the crown of all the front teeth in the lower jaw has become triangular, and the bridle teeth are much worn down. As the horse advances in age the gums shrink away from the teeth, which consequently receive a long narrow appearance, and the kernels become darkish points. Grey increases in the forehead and over the eyes, and the chin assumes the form of an angle.

Shedding Mane—The shedding of hair from a horse's mane and tail can be prevented by washing the parts affected a few times in carbolic soapsuds. Or a wash made of lard oil one pint and aqua ammonia one gill, well mixed and rubbed in, will prevent the falling of the hair.

Saddle Marks—White marks caused by the friction of the saddle may sometimes be removed from a horse by applying, morning and night, an ointment made of lard and tincture of cantharides or Spanish fly, made in the proportion of a few drops of the latter to an ounce of the former.

Ticks on Horses—Any kind of oil will make the tick let go of its own accord, if well rubbed into the hair of the animal. The theory is that the oil fills the pores of the skin and deprives the tick of air to breathe.

Fleas and Vermin—Nothing better to keep them off than Persian insect powder (pyrethrum roseum) recommended by British Medical Gazette and for sale at druggists' and rat poison stores. A solution can also be made.

New Food for Horses—This is composed of two quarts of oats, one of bran and half a pint of flax seed. The oats are first placed in the stable bucket, over which is placed the linseed; add boiling water, then the bran, covering the mixture with an old rug and allowing it thus to rest for five hours; then stir the mass well up. The bran absorbs while retaining the vapor, and the linseed binds the oats and bran together; a greater quantity of flax seed would make the

preparation too oily and less relished. One feed per day is sufficient; it is easily digested, and is especially adapted to young animals.

To Extricate a Mired Animal—The usual method is to fasten a rope around the animal's horns or neck, and while this is pulled by some of the assistants, others place rails beneath the body of the animal for the purpose of lifting it out of the hole. This plan is sometimes effective, but it often is not, and at best it is a slow, clumsy and laborious method. The materials needed for the method here referred to are all that are required for a much better one. This is very simple, and two men can operate it, and at a pinch, even one man may succeed with it. A strong stake or an iron bar is driven into the solid ground at a distance of twenty-five feet or more from the mired animal. Two short rails, about nine feet long, are tied together near the ends, so that they can be spread apart in the form of a pair of shears, for hoisting. A long rope is fastened around the horns or neck of the animal, with such a knot that the loop cannot be drawn tight enough to do any injury. The rope is cast over the ends of the rails as they are set up upon the edge of the solid ground, and carried to the stake or crow-bar beyond. The end of the rope is fastened to a stout hand-spike, leaving about a foot of the end of it free. This end is laid against the bar or stake, and the other end is moved around it so that the rope is wound upon it, drawing it up and with it drawing the animal out of the mire. The rope being held up to the tied rails, tends to lift the animal and make its extrication very easy.—American Agriculturist.

Rawhide Straps and Halters—Take the skin of cow, calf, colt, horse or other animal, cut it into narrow strips, and shave off the hair with a sharp knife before the kitchen fire, or in your workshop on stormy days and evenings. You may make them soft by rubbing. A rawhide halter strap an inch wide will hold a horse better and last longer than an inch rope. It is stronger than hoop-iron and more durable, and may be used to hoop dry casks and boxes, and for hinges. Try it on a broken thill, or any wood work that has been split. Put it on wet and nail fast. Thin skins make the best to use it in its natural state. For other purposes it may be dressed.

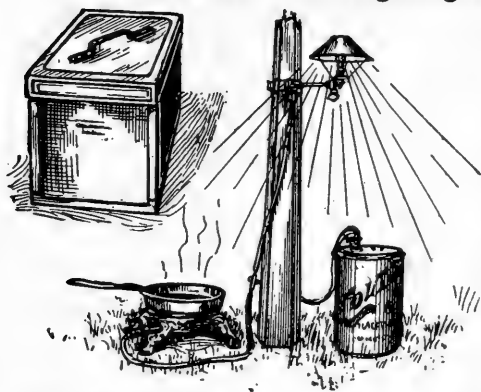
Rawhide Lariat or Lasso—Take a green bull hide, lay it flat on a smooth floor, cut off the legs and irregular pieces with a sharp knife until you bring it to an oblong or oval shape, then commence at the outer edge and cut a strip an inch wide or more, following the circular form until you have secured the required length, which should be fifty feet, then wind it on two posts, trees, or stakes, drawing it as tight as possible so as to stretch it. Then roll it foot by foot between two small boards and make it pliable, and then boil it in oil to keep it so, otherwise it will become very hard and dry when it gets wet. Then make a slip-noose at the end, and your lariat is complete. To ensure a good, free running noose, bend the end on over an eye or iron ring three-fourths of an inch in diameter. A lariat made of strips of buckskin braided and oiled it very serviceable.

To Tote, Pack or Carry a Deer—1. In dragging the carcass of a deer to camp, never draw it by the hind legs. This is against the grain of the hair making the load heavy and damaging the meat. If a sapling is handy, sling the deer to it with its feet tied in pairs, and the nose secured to the pole, so that it will not swing and sling blood all over.

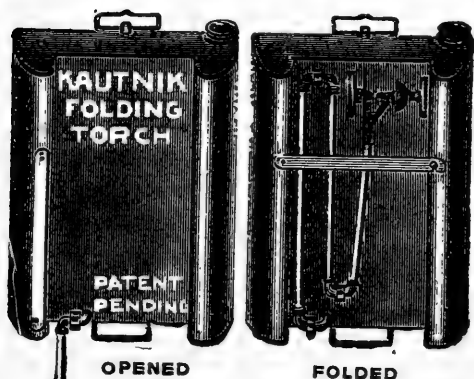
2. Cut off the deer's head, skin his legs down to his knees and hams, cut off the feet and shin-bones, tie the skin of each fore-leg to that of a hind-leg on the opposite side, put your arms through, and pack him knapsack-fashion.

3. First, see that the deer is well bled; next, cut entirely around the arms, working your knife carefully well inward until the intestines are clear of all connection with the flesh through the hams. Cut slits in the hind legs for the gambrel; then cut three poles about twelve feet long and four inches in diameter at large end, leaving a crotch at the end of two, and an inch or so of a small limb about a foot from the top end of the third; thrust the end up to limb through the cut in the legs, and place the foot of this pole against some firm object to keep it from slipping back, and then place the crotched end of the two poles over the leg, and under the pole at the gambrel, setting the poles so that you can lift on the bottom of each toward the center, crowding downward on the foot of each pole till your deer swings clear of the ground. Commence at a point on the belly about eight inches below where the hams press together;

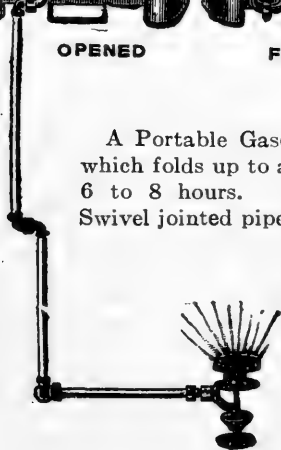
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cut only through the skin downward through the brisket and neck to under jaw, also from the hock of each fore-leg on the inside to the brisket, meeting the downward cut; skin the fore-legs, neck and body to the fifth rib, but no farther, and then open and take out intestines, cutting brisket well open to allow all to fall out clear from body, and then divide the body at the fifth rib, detaching the fore-quarters entirely; cut the large strips of meat from the shoulder blades, ribs and back of the fore-quarters, discarding the remainder. You have now hanging the hind-quarters with the skin attached; tie the skin closely with a cord just where it leaves the meat, and sto waway the pieces from the fore-quarters on the inside the ribs of the hind-quarters. Now, if weather permits, leave hanging till the blood drains out and body is cold, and as much longer as may be convenient, only taking the precaution to hang over the whole a few branches of some evergreen to keep off the storms. Provide yourself with a packing strap and bag, take down the quarters, pull the neck end of skin back between the legs, draw down the tail and with a cord tie together, while the skin from the fore-legs should be brought around the body and tied at the small of the back, unjoint the legs just below the gambrel and you have a compact, clean bundle that includes nearly all there is of value, and in such shape that the meat is entirely covered with the skin, and with a packing strap can be carried quite handily. If found too heavy with the meat inside, put this in your packing bag and make another journey. The hind-quarters are now in shape to stand quite a change in weather, and can be transported without injury, while the choice pieces of the fore-quarters not used in camp can be stowed away inside and kept clean and palatable. A deer cannot be nicely dressed without being hung up a sufficient time to allow the blood to drain out and with the three poles mentioned a man that can carry seventy-five pounds can raise three hundred, although with a very large animal it may be necessary to use two sets of the poles with the crotches, the first set shorter, to get the body partly up before setting those long enough for the last raise.

To Waterproof Tents and Garments—Dissolve paraffine in naphtha or benzine, and soak thoroughly.

2. Take half a pound of sugar or sugar of lead and half a pound of powdered alum, dissolve them in a bucket of rain water and pour off into another vessel and steep your tent in it, letting it soak thoroughly. If the quantity is not sufficient increase in same proportion. Hang the article up to dry, but do not wring it.

Waterproof for Boots—Six ounces mutton suet, six ounces beeswax, four ounces rosin, and a pint of linseed oil; melt the three first ingredients together and add the last. Apply on uppers and soles of boots.

2. Six parts tallow, two parts beeswax, one part rosin, one pint castor oil and two parts caoutchouc. When melted together, apply as warm as the leather will permit, with a brush.

3. Nantucket fishermen, when they want to make their boots waterproof, just pour half a gallon of boiled linseed oil into them, and let it stay there for a week.

4. Take one-half pound of shoemaker's dubbing, one-half linseed oil, one-half pint strong solution of India rubber. Dissolve the whole with a gentle heat (it is very inflammable), and apply with an ordinary blacking brush. One application will insure dry feet for several months.

5. Melt together one pound tallow, half an ounce neats-foot oil, one ounce rosin, one-half ounce lamp-black, a tablespoonful of linseed oil. Should be rubbed in repeatedly, the boots or other articles to be warmed. It is said to be perfectly waterproof and not injurious to the leather.

6. In a pint of best winter-strained lard oil, dissolve a piece of paraffine the size of a hickory nut, aiding the solution with a gentle heat, say 100 or 140 degrees Fahrenheit. The readiest way to get pure paraffine is to take a piece of paraffine candle. Rub this solution on your boots about once a month; they can be blackened in the meantime. If the oil should make the leather too stiff, decrease the proportion of paraffine, and vice versa.

7. Take neatsfoot oil, one and one-half pints; beeswax, one ounce; spirits of turpentine, four ounces; and stir until cold. Spread and rub this composition over the leather while it is damp; leather will absorb oil and grease better when damp than when dry. For the soles, take pine tar and rub it in before the fire until the soles will absorb no

more. Three or four applications will be needed. The durability of the soles will be much increased.

8. Take one pint of drying oil, two ounces of yellow wax, two ounces spirits of turpentine, and one ounce of Burgundy pitch—the hard materials melted over a slow fire, and the others added and well mixed. Rub this mixture on the boots at a distance from the fire, repeatedly, until the leather is saturated. Common black pitch was found equal to the Burgundy, and rather better. It is probable that other variations might be made without detriment, provided a proper consistency is maintained in the mixture of the oils, wax and pitch. The boots do better to dry three or four weeks after being treated with the composition, than to use them while it is fresh.

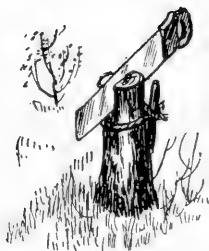
9. Take a quarter of a pound of beef and mutton suet, a teaspoonful of lard, half pint of neatsfoot oil, one ounce of beeswax, half an ounce of Burgundy pitch, and a half ounce of turpentine. Melt up the suet, the lard, the pitch and the beeswax in a pot, stir in the oil, and when off the fire, and cooling a little, put in the turpentine. If you want to be elegant, add a half box of blacking to give it a color. Warm the compound and paint the boots, upper and soles. It makes a boot quite water tight, and salt water cannot phase it.

10. India rubber cut fine, one ounce put in a pint of petroleum (raw) or Seneca oil. Let stand a week, and then apply with brush until the leather is saturated.

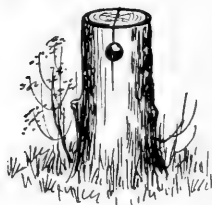
Rubber Cement—One-half pound bi-sulphate of carbon; three handfuls of gutta percha; put in a wide-mouthed bottle; shake frequently; at the end of two weeks strain through a cloth, return to bottle and cork tightly, for reasons that will be obvious. To apply, first dry the article, then smear the cement on and allow it to evaporate, before bringing edges together. After it has become light-colored in spots, warm and bring edges perfectly together; stand away for awhile and the job is complete.

2. Four ounces of pure India rubber, one-eighth of an ounce powdered asphaltum, put together in a tin can, then add about six times the quantity of benzine, let it stand three or four days, then take a stick and work it over, then add benzine and stir it well until you have it about the con-

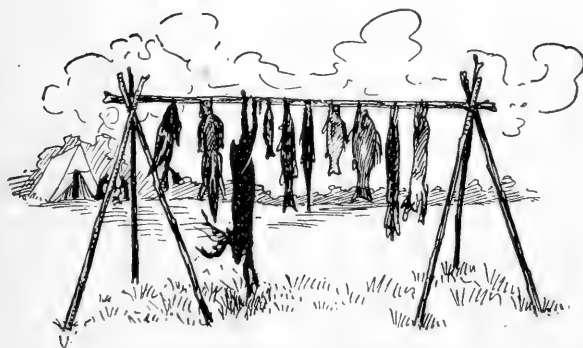
Things that Can Be Made in Camp.



Vise Made from Sapling.



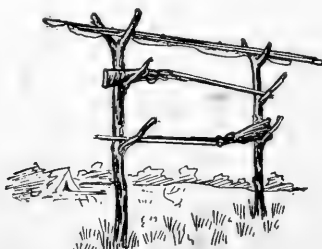
How Made.



Permanent Game Rack.



Temporary Game Rack



Gun, Rifle and Rod Rack.

sistency of honey; then it is ready for use. It should be covered as tight as possible while dissolving, and afterward. To use it, scrape the polish from the rubber, then apply the cement to the place to be mended, and also to a piece of rubber to be used as a patch. Dry half an hour, and apply another coat, then, after another half hour, press the patch into the place over the break. Like all other preparations containing benzine, it must be kept away from fires, as it is as explosive as burning fluid.

3. Cut virgin or native India rubber with a wet knife into the thinnest possible slices, and with shears divide these into threads as fine as fine yarn. Put a small quantity of the shreds (say one-tenth or less of the capacity of the bottle) into a wide-mouthed bottle, and fill it three-quarters full of benzine of good quality, perfectly free from oil. The rubber will swell up almost immediately, and in a few days, especially if often shaken, assumes the consistency of honey. If it inclines to remain in undissolved masses, more benzine must be added; but if too thin and watery, it needs more rubber. A piece of solid rubber the size of a walnut will make a pint of the cement. This cement dries in a few minutes, and by using three coats in the usual manner, will unite leather straps, patches, rubber soles, backs of boots, etc., with exceeding firmness. The India rubber, unvulcanized, can be obtained at most large stores where rubber goods are sold, and at some drug stores.

To Cook Mushrooms—Peel both tops and stems, put in a stew-pan, with an ounce of butter and a pinch or two of salt to each pound, and serve up hot. This will answer to eat with fish, flesh and fowl. **To fry them**—peel, dip in egg and roll in cracker dust, season, and fry with oysters.

To Roast a Wild Turkey—Having picked and cleaned a turkey, put up two short forked stakes pretty close to the fire; cut a thin straight stick with which split the turkey; lay the ends of the stick in the crotches of the uprights, turn the bird slowly before the fire. A pan should be placed underneath to catch the gravy and dripping, with which baste the turkey from time to time. Make the basting of a little butter or lard, flour, salt and water.

To Bake Small Birds—Quail, woodcock, pigeon, snipe, prairie fowl, etc., should be neither picked nor drawn.

CAMP LIKES AND COOKING OUTFIT



For Cooking and Lighting Inside a Tent.

Wet the feathers thoroughly; make a hole in the coals, and put in the wet bird. Cover well with coals and hot ashes, to exclude air and prevent burning. When cooked, the skin and feathers will peel off bodily, leaving the well-cooked meat unmarred.

To Bake a Fish—Cover the fish undrawn, with clay two inches thick, and throw it into the hottest of the fire. The clay hardens almost instantly, and the fish in its rough oven bakes through and through, retaining also its juices. The clay is then poked out of the fire, cooled with a dash of water, and a sharp stroke with a stick separates it from the fish. The fish's skin peels off with the clay and the dish is ready.

Having cleaned, split and seasoned the fish, pin it to a board by wooden pegs; then prop the whole up before a smart hot fire of hot coals. The fish is very quickly baked brown.

Wrap the fish evenly in thin buttered tissue paper, and bury this in some wet brown wrapping paper, and then bake as in No. 1.

Venison Steak—Cut your meat down the grain, an inch thick, place it on the fork of a stick, and turn it smartly over a hot fire of coals.

Venison Stew—A venison stew, or a miscellaneous stew is made by cutting the breasts of fowl and the flesh of the animal into chunks; take sliced potatoes, slices of bread or crackers, sliced onions, and salt pork and place them in alternate layers, seasoning with salt and pepper between each. Fill up even to the top of the mess with water and boil till the potatoes are done.

To Cook a Head with the Hair On—The head of a deer, or any large animal, with the hide on, is put into a hole in the ground sufficiently large to hold the head and a lot of smooth stones weighing two or three pounds apiece, and deep enough to sink them a foot below the surface. Make a hot fire in the hole, and another near by; heat the rocks as hot as they can be heated without cracking. Then, when both the earth oven and stones are hot, clean the fire out of the hole, put in a layer of stones, then the head neck down, and then the rest of the stones around and over the head; throw in a lot of mint, sweet weed (grass or leaves

will do), cover all with earth well packed down; let it remain all night, and in the morning eat it. Any portion of the carcass wrapped in a raw hide can be cooked in the same way.

Mountain Hotch-Potch—Take the best part of a neck of venison, or mountain sheep is better, cut it small, bones and all, and boil it until thoroughly well done, or until the meat separates from the bones. Then remove the bones and put in a quantity of green peas and broad beans at discretion not to make the hotch-potch too thick; add a flavor of onions and parsley, together with a fair proportion of carrots, turnips, and kale or other cabbage, taking care to make the combination thick enough, but not so thick as to deprive it of the character of a soup and convert it into a pottage and boil the whole for eight or nine hours. If you boil it for twelve, or even twenty hours, it will be none the worse, but all the better. If there be any left, boil it up again on the next day and it will be better than on the first. You can get some vegetables at the ranches.

HINTS ON THE VALUE OF SKINS.

The skins of animals trapped are always valued higher than those shot, as shot not only makes holes, but frequently plow along the skin, making furrows as well as shaving off the fur. To realize the utmost for skins they must be taken care of, and also cleansed and prepared properly. Newhouse gives these rules, derived from experience:

1. Be careful to visit your traps often enough, so that the skin will not have time to get tainted.
2. As soon as possible after an animal is dead and dry attend to the skinning and curing.
3. Scrape off all superfluous flesh and fat, and be careful not to go so deep as to cut the fibre of the skin.
4. Never dry a skin by the fire or in the sun, but in a cool, shady place, sheltered from rain. If you use a barn door for a stretcher (as boys sometimes do), nail the skin on the inside of the door.
5. Never use "preparations" of any kind in curing skins, nor even wash them in water, but simply stretch and dry them as taken from the animal.

“MAKE LIFE WORTH LIVING”

Civilization has made such rapid progress during the last fifty years, within the boundaries of the United States and “the forest primeval” has been so invaded by the foot of man, and the varieties of large game so encroached upon and driven into the mountain fastnesses, that hunting, as a profession or as a means of livelihood, has become an uncertain quantity. But man, even with his luxurious environments of the nineteenth century, feels the returning impulses of his barbarous ancestors, and longs once more to join in the chase, to capture, slay and devour.

Whatever pangs of conscience may arise from these destructive tendencies, he quiets by the assurance that he does this for the benefit of his health, or for needed recreation; and we, who have so often yielded to these impulses, are willing to grant that his excuse is far from lacking the foundations of truth.

There is probably no exercise or method of recreation more calculated to recuperate the nervous energies, which have become jaded from worry and care, or a long-continued pressure of professional labor, than to lay aside all thought of business, flee to the mountain wilds, to the quiet lake, to the salt sea, or to the babbling brook, and live with nature; to camp under the blue sky, to breathe the sweet, pure air of heaven; hunt and fish, as did our forefathers.

Worry is the rust that corrodes the body and soul. Thousands and tens of thousands of men and women are dying from worry over the affairs connected with the everyday work of life. Thousands of cases of heart disease, brain trouble, nervous disorders, dyspepsia, insomnia, and the breaking down of the various organs of the body may be traced directly to the interminable grinding in this modern mill of business.

To all such I would say, go away for awhile from your elegant homes, where you have been so long pampered in the lap of luxurious ease; go into the wilds, live in camp, forget your care by allowing the mind to indulge in new channels of thought, and your muscles and nerve-centers to become accustomed to new habits of exercise. When will the world arrive at that state of civilization when men

will acknowledge, by their actions, that life is worth living? Why should we sacrifice the best and most precious years of our lives on the altar of Mammon?

Life is worth living only when we are in a condition to enjoy it. We are in a condition to enjoy existence only when the body glows with health. We live, in reality, only when digestion is good, when the circulation is free, and when the blood, in healthful pulsations, goes bounding to the brain, awakening into activity all the nobler and finer instincts, taking on the natural man and soon dropping the artificial one which the restraining influences of city life has abnormally developed in us.

We love to mingle instead of avoid each other, to fraternize, and mind and memory takes us back to old scenes and experiences of boyhood days and pleasures, forgetting cares and responsibilities and join the circle, dear to every hunter's heart, that gathers around the evening camp-fire. Here we listen to the bear story, the Indian tale, recount the adventures of the day and plan for greater deeds to be performed on the morrow. But a better thing than this is, to go to bed, to sleep, and "knit up the ravelled sleeve of care." "Balmy slumber, tired nature's sweet restorer," it is seldom, in this hurrying age, that we get too much of it.

CAMP HYGIENE—MEDICINE, SURGERY

Colds and Headaches—Take of Norwood's tincture veratrum one drop on a small lump of sugar every two hours, and a three-quarter quinine pill every three hours. This prescription is recommended by Dr. N. Rowe, of the Chicago Field.

2. Dissolve fifteen or twenty grains of chloral in very little water, and with the tip of a finger rub it upon the seat of pain until you can sensibly feel the burning and the skin is reddened.

Fever Diet—When a patient will not take beef tea in the ordinary form, freeze it, and administer in small lumps. In this way it forms a most palatable article of diet.

Diarrhoea and Dysentery—An old army prescription used in the Mexican war is a mixture of equal parts of capsicum

(red pepper), Hoffman's anodyne camphor and peppermint, with one-half the proportion of laudanum. Take twenty drops in a tablespoonful of water every hour until cured.

Croup—Croup can be cured in one minute, and the remedy is simply alum and sugar. The way to accomplish this is to take a knife or grater and shave off in small particles about a teaspoonful of alum; then mix it with twice its quantity of sugar, to make it palatable, and administer it as quickly as possible. Almost instantaneous relief will follow.

Burns—Charcoal has been discovered to be a cure for burns. By laying a piece of cold charcoal upon the burn the pain subsides immediately. By leaving the charcoal on one hour the wound is healed, as has been demonstrated on several occasions.

Cure for Wounds—As soon as a punctured wound is inflicted, get a light stick (a knife or file handle will do) and commence to tap gently on the wound. Do not stop for the hurt, but continue until it bleeds freely and becomes perfectly numb. When this point is reached, you are safe; and all that is then necessary is to protect it from dirt. Do not stop short of the bleeding and the numbness, and do not on any account close the opening with plaster. Nothing more than a little simple cerate on a clean cloth is necessary.

Fish Bone in Throat—If you get a fish bone in your throat, fast there, swallow an egg, raw; it will be sure to carry down a bone easily and certainly.

Chilblains—Cut up two white turnips, without paring, into thin slices; put the slices into a tin cup with three large spoonfuls of best lard; let it simmer slowly for two hours, then mash this through a sieve; when cold, spread it on a soft linen cloth, and apply to the chilblain at night.

Snake Bites—Apply raw sliced onions to the wounded parts.

For rattle-snake bite, make the patient swallow large and repeated doses of olive oil, until a quart is swallowed; rub mercurial ointment into the affected part freely.

Rattle-snake Bites—The following is used by soldiers on the plains, and is said to be efficacious; Iodide of potassium, four grains; corrosive sublimate, two grains; bromine, five drachms. Ten drops, diluted with a tablespoonful or

two of brandy, wine, or whiskey, is the dose, to be repeated, if necessary. Keep in a well-stoppered phial.

Bites of Rabid Animals—Mix thoroughly two tablespoonfuls chloride of lime with a half pint of fresh water and bathe the wound almost without cessation until the physician arrives, or until the poison is neutralized.

Poisons—An antidote for corrosive sublimate is the white of two eggs; it will neutralize the poison and change the effect to that of a dose of calomel.

If a person swallows any poison whatever, or has fallen into convulsions from having overloaded the stomach, an instantaneous remedy, more efficient and applicable in a larger number of cases than half a dozen medicines we can now think of, is a heaping teaspoonful of common salt, and as much ground mustard, stirred rapidly in a teacup of water, warm or cold, and swallowed instantly. It is scarcely down before it begins to come up, bringing with it the remaining contents of the stomach; and lest there be any remnant of a poison, however small, let the white of an egg, or a teacup of strong coffee, be swallowed as soon as the stomach is quiet; because these very common articles nullify a larger number of virulent poisons than any medicines in the shops.

Poison Ivy or Sumac—Sometimes wet salt or pork brine bound on the poison spots and kept wet will soon dry them up. Very strong ammonia applied frequently as soon as the poison appears is an excellent remedy. This remedy is sometimes severe in its effects, acting as a caustic on the poison spots after the poison is killed. When ammonia fails, powdered gum myrrh, shaken up in sweet oil and used three times a day as a wash, will be found an almost unfailing remedy. When obtainable, it is the best to apply at first.

2. The last remedy has been used successfully as a preventive, by liberally anointing the skin before going into the woods, always allowing the remedy to dry on the skin.

3. Tincture lobelia (equal parts water) or sugar of lead, or Pond's extract (Hamamelis). Think the "Hamamelis" the best; very cooling and allays the itching, etc. Ivy poison has a "run" of about one week, no matter what you apply.

4. Carbolic acid and glycerine, in the proportion of about one part of the acid to three of glycerine, which is also good for all kinds of insect bites, burns, cuts, bruises, etc.

5. Apply water as hot as can be borne to the part affected.

Disinfectants—If onions are sliced and kept in a sick room they will absorb all the atmospheric poison. They should be changed every hour. In the room of a small-pox patient they blister and decompose very rapidly, but will prevent the spread of the disease.

2. One pound of green copperas, costing seven cents, dissolved in one quart of water, and poured down a water-closet, will effectually concentrate and destroy the foulest smells. On board ships and steamboats, about hotels and other public places, there is nothing so nice to purify the air. Simply green copperas dissolved in anything will render a hospital or other places for the sick free from unpleasant smells.

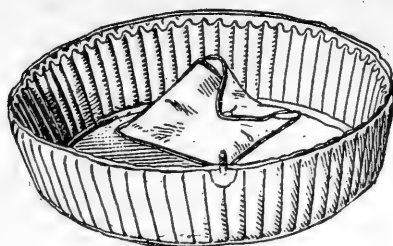
Sleeping in a Cold Room—People who come in from a long period of out-door camping are almost certain to catch cold in a house when they return, because, having been accustomed to sleeping in the open air, they almost invariably leave their windows open. Many persons who went to bed well, are surprised to wake up in the morning with inflammation of the lungs, solely because they have hoisted the windows for ventilation. Hall's Journal of Health says that robust persons may safely sleep in a temperature of forty or under, but the old, the infant, and the frail should never sleep in a room where the atmosphere is much under fifty degrees Fahrenheit.

If there is some fire in the room all night the window may be opened an inch. It is safer to sleep in bad air all night, with a temperature over fifty, than in a pure air with the temperature under forty. The bad air may sicken you, but cannot kill you; the cold air can and does kill very often.

Rubber Specialties for Camp Uses



1—Sportsman's Rain Cape (Featherweight)



10—Rubber Bath Tub.



13—Poncho Rubber Blanket.



2—Cape Packed.



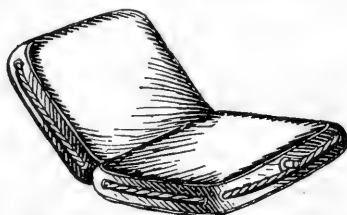
9—Rubber Wash Basin.



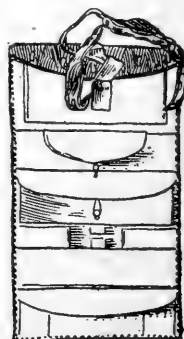
4—5—Rubber and Canoe Tumbler.



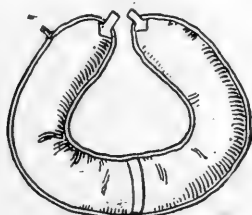
6—Rubber Toilet



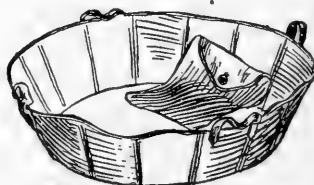
12—Sportsman's Inflated Seat.



17—Rubber Toilet Case.



16—Canoe Seat.



3—Camp Bath Tub.



8—Rubber Bucket Open.



7—Rubber Bucket Closed.



14—Rubber Tobacco Pouch.



15—Rubber Ration Bag.

FIRST AID TO INJURED IN CAMP

Drowning—Loosen clothing. 2. Place patient face down with head and shoulders low. 3. With finger clear mouth of foreign substances. 4. Press firmly on back and sides of chest to expel water. 5. Draw tongue well out of mouth and keep it so by tying string over it and under lower jaw. 6. Turn patient on back with tightly rolled coat under shoulders. 7. Kneel at patient's head, grasp arms below elbows and draw them above patient's head, making forearms touch ground. 8. Push the arms forward, cross them over the lower part of chest and press firmly. 9. Repeat these movements eighteen times a minute. 10. Every two minutes turn patient on face and press firmly on back and sides of chest to expel water. 11. Others should replace wet clothes with dry ones and make hot applications. 12. Continue these measures at least two hours. 13. When patient begins to breathe give stimulant, hot drinks, and rub legs upward, vigorously.

Burns and Scalds—Cover with Cooking Soda and lay wet cloths over it. White of Eggs and Olive Oil. Olive or Linseed Oil, plain, or mixed with Chalk and Whiting.

Lightning—Dash cold water over person struck.

Sunstroke—Remove patient to shady place, apply ice to head and neck, sponge body with cold water.

Mad Dog or Snake Bite—Tie hand above wound and burn with iron at white heat; or cut out wound, making it bleed freely, and then apply nitric acid.

Venomous Insect Stings, etc.—Apply weak Ammonia, Oil, Salt water or Iodine.

Fainting—Place flat on back; allow fresh air, and sprinkle with water.

Tests of Death—Hold mirror to mouth; if living moisture will gather. Push pin into flesh; if dead the hole will remain; if alive it will close up.

Cinders in the Eye—Roll soft paper up like a lamp lighter and wet the tip to remove, or use a medicine dropper to draw it out. Rub the other eye.

SPECIAL POISONS AND ANTIDOTES

Remove patient where medical skill can be obtained. If you are not competent to handle it send for such service post haste.

Second—Induce vomiting by tickling throat with feather or finger; drinking hot water or strong mustard and water. Swallow sweet oil or whites of eggs.

Acids and antidotes for **Alkalies**, and vice versa:

Acids—Muriatic, Oxalic, Acetic, Sulphuric (Oil of Vitriol), Nitric (Aqua Fortis). Soap-suds, magnesia, lime water.

Prussic Acid—Ammonia in water. Dash water in face.

Carbolic Acid—Flour and water, mucilaginous drinks.

Alkalies—Potash, Lye, Hartshorn, Ammonia. Vinegar or Lemon juice in water.

Arsenic—Rat Poison, Paris Green. Milk, raw eggs, sweet oil, lime water, flour and water.

Bug Poison—Lead, Saltpetre, Corrosive Sublimate, Sugar of Lead, Blue Vitriol. Whites of eggs, or milk in large doses.

Chloroform—Chloral, Ether. Dash cold water on head and chest. Artificial respiration.

Carbonate of Soda—Copperas, Cobalt. Soap suds and mucilaginous drinks.

Iodine—Antimony, Tartar Emetic. Starch and water as-tringent infusions. Strong tea.

Mercury and Its Salts—Whites of eggs, milk, mucilages.

Opium—Morphine, Laudanum, Paregoric, Soothing Powders or Syrups. Strong coffee, hot bath. Keep awake and moving at any cost.

FIRST AID TO THE INJURED—GENERAL INSTRUCTIONS

Shock—A person who has been injured in a railroad accident, severely burned, or even suddenly frightened, often suffers from shock. The symptoms are feeble breathing, feeble pulse, pale face, cold skin and sometimes a delirious state of mind. The treatment is to place the patient in a horizontal position with head slightly lowered.

First bind open wounds, then give from a teaspoonful to a tablespoonful of whisky or some other stimulant in a tablespoonful of hot water, repeating the dose every ten minutes, until five or six doses have been taken. Put hot flannels on the chest, and hot water bottles or hot bricks along both sides of the body, and under the armpits. Then cover the patient with a blanket to keep the heat in. The point of all this treatment is to thoroughly warm and stimulate the patient.

Care should be taken, however, not to use bricks or cloths that are too hot, or the patient may be burned. Remember that the patient suffering from shock is as a rule unable to feel the hot applications, so judgment must be used to avoid inflicting burns.

Wounds—The principal object in treating a wound is to stop the flow of blood. First apply something over the opening to prevent the escape of blood, and then close the artery somewhere between the heart and the point where the injury is situated.

This can be done by means of a tourniquet, which is a bandage or rope placed around the arm or leg, and twisted by means of a stick until it is tight enough to compress the artery and stop the flow of blood. In placing the bandage to stop the flow of blood, tie a knot, and place the knot on the vein of the artery, then tie tightly. The pressure of the knot on the artery is of great assistance in stopping the flow of blood. This is effective in the care of deep wounds with smooth edges.

Lacerated Wounds—In cases where a wound has a ragged edge, and the skin about it torn or bruised, cleanse the wound thoroughly in warm water, place a cloth over it, and bandage tightly. The cloth should be either a clean dry one, or wrung out of clean boiling water and allowed to cool before applying.

Wounds of this kind are usually caused by railway and machinery accidents, by falling timber, stone, etc., and are accompanied by a shock which should be given the treatment mentioned under that head.

Bruises—Lay over the bruise a cloth saturated with hot water, or with any of the household remedies that contain alcohol. Hot poultices will diminish the pain and hasten

the absorption of the blood. If the skin has been opened by the bruise, alcohol will be found painful, but it assists in stopping the flow of blood. The home-made poultice should be made of clean materials. A sterilized poultice is better.

A Crushed Part—In a case where the foot or hand is crushed it should be put back as naturally as possible to its original shape, and then unless it is bleeding profusely, wrapped in a cloth dipped in warm water, and the whole injury warmly wrapped in a blanket.

Insect Stings—Apply immediately a weak solution of either iodine, ammonia, salt water or oil.

Burns and Scalds—Apply immediately either vaseline, linseed, olive or castor oil, white lead, soap or whitewash.

Sprained Ankle or Wrist—The essential treatment in this case is to apply a cold application of some kind.

Some people advocate pouring cold water from a height on the injured member. After the swelling has decreased it may be rubbed with alcohol or salt water.

A sprain should be bound up tightly before the swelling sets in, but not afterward. Binding after the swelling has taken place will cause severe pain and do more harm than good. Bandages after swelling should be loose.

Mad Dog Bites—Bind a cord above the wound; suck the wound out, and sear or cauterize the injury immediately with a white-hot iron or with caustic. The wound should be cauterized deeply, in spite of the pain caused. If the surface is merely seared over the poison may remain in the wound and continue to go through the system. Give stimulants such as whisky or brandy. The object of the treatment is to prevent the spreading of the poison through the system.

Gun Shot Injuries—A bandage should be applied tightly above the wound to stop bleeding, foreign matter removed, and the wound washed.

It is not advisable to try to probe the wound—leave that to a physician. An instrument picked up hastily in the home may not be clean and may serve only to make matters worse.

Nosebleed—Nosebleed may be stopped by plugging up the nostrils with lint, and making cold applications to the

back of the neck. In some cases nosebleeds may be checked by cobwebs or by placing a piece of folded brown paper under the upper lip.

Internal Bleeding—Keep the patient at perfect rest. Give small pieces of ice to swallow.

Fracture of Limb—Place the injured member on a pillow and lay a cool wet cloth on the fracture. If ice can be obtained, it is better to make an ice pack and place around the injury. Break the ice into small pieces and wrap in a clean cloth.

Then take two pieces of thin board, somewhat longer than the injured bone and as wide as the limb is thick and fold up pieces of cotton batting or soft cloth for a pad. Tie the splints firmly one on each side of the injured member, using for this purpose strips of cloth, the object of this being to keep the broken ends of the bone immovable.

Other Fractures—In the case of fractures of the jaw, skull, etc., place the patient in a cool, dark, quiet place, keeping the head slightly raised and placing a wet cloth on it. Stimulants should not be given.

Dislocation—The best general treatment for dislocation of all kinds is to make the patient as comfortable as possible and lay a cold wet cloth over the affected joint until skilled aid can be obtained.

Suffocation—Dash cold water in the face, slap the patient on the breast, and hold ammonia under the nostrils. If these simple means do not restore breathing, it will be necessary to resort to artificial respiration, which is discussed under drowning.

Another Treatment for Drowning—Never take it for granted that a person taken from the water is dead until the treatment recommended to restore a drowning person has been tried to the limit. Cases are on record where persons have been under water a half hour, and have been brought back to life.

If the patient's face is swollen and purple, with the lips livid and eyes bloodshot, or if, on the other hand, he appears pale and flabby, it is no evidence that he is dead. The treatment should be given immediately and on the spot, except in extreme weather, when the body may be removed to a place of shelter if it is near.

The first object of the treatment is to make the patient breathe, and after this is accomplished to re-establish the circulation of the blood, and to restore warmth to the body.

First send immediately for a doctor, blankets and stimulants. Expose the chest and shoulders to the wind, quickly open the clothing about the neck, turn the patient on the face; clasp your hands together beneath the stomach, and lift as high as possible, allowing the head to hang so the water can run out. Hold the patient in this position for a few seconds, and then turn him again on his back. Wipe out the mouth and the back of throat with your finger covered with a handkerchief.

If this does not restore breathing, apply smelling salts to the nose, tickle the nose with a feather or straw, and dash water on the chest, alternately hot and cold. These methods must be quickly tried, and if they are not successful artificial respiration must be resorted to.

The best method known is Sylvester's method. The point is to make the chest expand, causing the air to be drawn in just as a pair of bellows will fill with air when open. Then the chest is made to contract, and the air forced out.

By alternately performing these movements we have inspiration and expiration, and the two together constitute breathing, or respiration. The patient should be placed on the back with the shoulders resting on a roll of clothing, and the tip of the tongue drawn forward out of the mouth, otherwise it will fall back into the throat and will interfere with breathing.

This is very important, and should be done by grasping the tongue with a dry handkerchief, or the fingers may even be covered with sand to prevent the tongue slipping.

If alone, one would have to draw the tongue out and tie it against the lower teeth. The best way to hold the tongue out is to run a pin or needle through it, which will prevent it from falling back. Then after adjusting the tongue, kneel behind the patient's head, grasp him by the forearms, and draw up his arms back again until they rest against the chest for one second.

Continue this regularly and persistently at the rate of

sixteen times per minute, until some effort is made by patient to breathe, when you should endeavor to time these movements by his efforts. At such a time ammonia may be applied as well as dashes of cold water and slapping. Even if there be no sign of life, this artificial respiration should be continued for an hour and a half at least. If this is properly done, the air can be heard entering and leaving the chest.

During the attempt to restore respiration the body should be kept warm. This may be done by friction of all kinds, as well as by hot water bottles and hot bricks. As soon as the patient can swallow, give hot drinks. If difficulty of breathing persists, apply a hot mustard plaster to the chest.

Choking—In cases where some foreign substance has gotten into the throat and the patient turns purple in the face, the eyes protrude, the arms are thrown about, and sometimes the patient falls unconscious, the first thing to do is to slap him violently on the back. Stand him up face to the wall with his chest resting against it, and give him a severe blow between the shoulders.

In the case of a child, place one hand on each side of the chest, and compress it vigorously and constantly, or lift it up by the heels and slap the back while in this position. Sometimes the foreign substance can be grasped by thrusting the thumb and forefinger down the throat.

For poisoning caused by internal use of any drug in a poisonous dose, frequently home treatment may be administered that will prolong life until the arrival of a physician. It should be first remembered, however, that it is necessary to keep a cool head in spite of dangerous symptoms or pain. This is not always easily done, but it is none the less important.

General Instructions—When a person is poisoned, life often depends on doing the right thing, and doing it quickly.

When the poison is unknown, the treatment must be conducted on general principles. If the patient vomits, the action should be promoted by copious draughts of warm water. If he is inclined to sleep, he must be kept awake. If he is faint, he must be made to lie down and take stimulants. If the extremities are cold, heat must be applied.

After the stomach is emptied, bland drinks such as starch or gruel (fine oatmeal, one ounce, mixed and boiled with a tumblerful of water) should be given. It is always safe, and often beneficial, to give Powdered Charcoal and Calcined Magnesia, either alone or mixed. **In any case, send for a physician.**

Emetics—As a rule, a person who has taken a poison should be made to vomit as quickly as possible. Give either a tablespoonful of **mustard**, or of common **table salt**, stirred into a tumblerful of lukewarm water.

Ice Rescue—To rescue a person who has broken through the ice you should first tie a rope around your body and have the other end tied, or held, on shore. Then secure a long board or ladder or limb of a tree, crawl out on this, or push it out, so that the person in the water may reach it. If nothing can be found on which you can support your weight, do not attempt to walk out toward the person to be rescued, but lie down flat on your face and crawl out, as by doing this much less weight bears at any one point on the ice than in walking. If you yourself break through the ice remember that if you try to crawl up on the broken edge it will very likely break again with you. If rescuers are near, it would be much better to support yourself on the edge of the ice and wait for them to come to you.

See **Restoring the Drowning and Artificial Respiration** also.

Freezing—The patient should be taken into a cold place and the body should be rubbed with rough cloths wet in cold water. The temperature of the room should be increased if possible. This should be done gradually and the cloths should be wet in warmer and warmer water. As soon as the patient can swallow give him stimulants. It will be dangerous to place him before an open fire or in a hot bath until he begins to recover. You will know this by his skin becoming warmer, by his better color and by his generally improved appearance.

Frost-Bite—Remember that you are in danger of frost-bite if you do not wear sufficient clothing in cold weather, and that rubbing any part of the body which becomes very cold helps to prevent frost-bite, because it brings more

warm blood to the surface. The danger is when, after being cold, the part suddenly has no feeling.

The object of the treatment is gradually to restore warmth to the frozen part. To do this the part should be rubbed first with snow or cold water; the water should be warmed gradually. The use of hot water at once would be likely to cause mortification of the frozen part. Hence use very cold water first, and very gradually bring it to luke warm; if the limb is frozen **use only cold water until thawed.**

Earache—This is likely to result seriously, and a doctor should be consulted in order to prevent bad results with possible loss of hearing. Hot cloths, a bag of heated salt, or a hot bottle applied to the ear will often cure earache. A few drops of alcohol on a hot cloth so placed that the alcohol fumes enter the ear will often succeed. If neither is effective, heat a few drops of sweet oil as hot as you can stand, put a few drops in the ear and plug with cotton. Be careful that it is not too hot.

Toothache—Remember that toothache indicates something seriously wrong with the teeth which can only be permanently corrected by a dentist. In toothache, if you can find a cavity, clean it out with a small piece of cotton or a toothpick. Then plug it with cotton, on which a drop of oil of cloves has been put, if you have it. If no cavity is found, soak a piece of cotton in camphor and apply it to the outside of the gum. Hot cloths and hot bottles or bags will help in toothache, just as they do in earache. Even Pepper, Ginger or any spice **on a piece of lint** used to plug up the cavity and keep the air out will stop the ache.

Chills—In order to stop a chill drink hot milk or hot lemonade and get into bed. Plenty of covers should be used, and hot water bottles or hot milk or lemonade help to warm one quickly. Hot coffee, tea, ginger tea, hot bottles or stone at the feet and plenty of blankets or covering.

Repeat the dose in ten minutes if the first dose fails to act.

Tickling the throat with the fingers or a feather is a rapid and effectual way of producing vomiting. Drinking warm water (not hot) always may be used, as **emetics** are Zinc Sulphate (30 grains), Ammonium Carbonate (30 grains), powdered Ipecac (30 grains), or Copper Sulphate

(5 to 10 grains), any one of these in the doses named to be given in half a tumblerful of warm water.

Aconite—Aconite is a common remedy kept in many households for fevers and sometimes an overdose may be taken accidentally or intentionally. For aconite poisoning, it is important to evacuate the bowels as soon as possible with any remedy that may be available. Also give atropine if it can be had, the dose for an adult being 1-50 of a grain.

Phosphorous—Promote vomiting as soon as possible, also give cathartics. The treatment for phosphorous poisoning should be continued for about three days because phosphorous is slowly secreted and is not easily dispelled from the system.

There is no regular antidote for the poison; early evacuation by the stomach tube and the free promotion of vomiting are the main points. Magnesia or Magnesium Carbonate should be given freely in mucilaginous drinks (flaxseed or slippery elm). Oils and fats should be avoided. Rinsing out the stomach with a dilute solution of Potassium Permanganate has also been advised.

Carbolic Acid—Give a tablespoonful of Epsom or Glauber salt in a half glassful of water and warm mucilaginous drinks; follow with hot applications to the extremities and counter-irritation over the abdomen. The best antidote for Carbolic Acid (phenol, coal tar disinfectants, etc.) is alcohol. For external injury use the strongest alcohol, but when the poison has been swallowed whisky is the most suitable. Use it promptly and liberally.

Alcohol, Grain or Wood—If necessary give emetics of mustard, also plenty of fresh air; apply cold cloths to the head, and maintain artificial respiration. Keep the patient in a horizontal position, his body warm by friction, and application of mustard plasters to his limbs. The best that can be done in poisoning by wood alcohol is to aid in the elimination of the alcohol by free sweating and by the administration of large quantities of water in which baking soda has been dissolved.

Arsenic and Its Compounds—First get rid of the poison by means of vomiting and the stomach tube. Vomiting may be induced by copious draughts of warm water or a mixture

of mustard and water. Raw eggs beaten up with milk are particularly useful, as is likewise a mixture of Albumen, milk and lime water; or equal parts of oil and lime water may be used, for the oil invests the poison and the lime renders it less soluble.

The most efficient antidote is the official Hydrated Oxide of Iron with Magnesia, which should be procured at once from the nearest drug store and administered in one-half teacupful doses. Laudanum (15 drops) should be given in the after treatment to allay pain and irritation, and plenty of fresh water to dilute the poison and to flush the kidneys.

Cocaine—Give an emetic of mustard and follow with large draughts of warm water. Give plenty Potassium Permanganate, 5 grains dissolved in a teacupful of water, repeating the dose every half hour until several doses have been taken. Then give strong tea or coffee. Arouse the patient and keep him in motion.

Fish Poison—Siphon out the stomach or evacuate with mustard, Zinc Sulphate, or any one of the emetics named above. Give Tannic Acid (20 grains in an ounce of water), copious draughts of strong tea or oak-bark decoction (tablespoonful to 4 fluid ounces of hot water). Follow by siphoning again or by emetic, if vomiting has stopped. Give one ounce of castor oil.

Arsenic—Cause vomiting by warm mustard water or salt water, as above indicated. Magnesia may also be given or Epsom Salts, if obtainable.

Paris Green—Employ the same treatment as given for Arsenic and its compounds.

Lead Poisoning—Give emetics to cause vomiting. Epsom Salts may also be used on the white of egg and milk. Also pump out the stomach as soon as possible.

Poison Ivy—Usually the poisoning is due to external contact. Rub in well a saturated solution of Lead Acetate in diluted alcohol and repeat for several days. Or apply a wash consisting of fluid extract of Grindelia, one part, water ten to forty parts. An infusion of Lobelia (one ounce to the pint) may also be used. Sea bathing is often beneficial.

Tobacco—No time is to be lost in beginning treatment. Give an emetic of mustard, followed by large draughts of

warm water. In addition to emetics or the stomach tube, strong tea or coffee with charcoal may be given. Brandy or Ammonia should also be given.

Poison Sumac—Employ the same treatment as given for poison ivy.

Ptomaine Poisoning—Employ the same treatment as given for fish poison.

Rough on Rats—Employ the same treatment as given for Arsenic and its compounds.

Snake Bite—Immediately and thoroughly suck or cup the wound. If the person bitten is too faint to do this for himself, anyone may fearlessly help him, for if there be no crack about the lip or tongue, these poisons may be swallowed with impunity. Check the circulation by a piece of rope or pocket handkerchief, tying around the limb, above the wound; or if this is impossible from the situation of the wound, by pressure around it. Then the bitten part may be cut out or cauterized. The local application of a strong solution of Potassium Permanganate or Bleaching Powder (chlorinated lime) has been highly recommended. For stings and bites of insects Ammonia water is the best remedy, but soap or any Alkaline substance will often give relief.

Fatal Hours in Illness—A scientist several years ago undertook to investigate the popular notion that there are certain hours during the twenty-four more fatal to life than others. He ascertained the hour of death in 2,880 instances of all ages from a mixed population, and from deaths occurring during a period of several years. The maximum hour of death is from 5 to 6 o'clock a. m., when it is 40 per cent above the average; and the minimum during the hours from 9 till 11 o'clock in the evening, when it is $6\frac{1}{2}$ per cent below the average. Thus the least mortality is during midday hours—namely, from 10 to 3 o'clock; the greatest during early morning hours, from 3 to 6 o'clock.

Chilblain Cure

Creosote	drops	12
Goulard's Extract	drops	12
Extract of Opium	gr.	$1\frac{1}{2}$
Pine Tar	gr.	90
Lard	av. oz.	1

SNAKE BITES, POISON IVY, BITES OF INSECTS, ANIMALS, FISH, ETC., ETC.

Poisons and Their Antidotes

Always send immediately for a medical man. Save all fluids vomited, and articles of food, cups, glasses, etc., used by the patient before taken ill, and lock them up.

As a rule give emetics after poisons that cause sleepiness and raving:—chalk, milk, eggs, butter and warm water; or oil after poisons that cause vomiting and pain in the stomach and bowels, with purging; and when there is no inflammation about the throat, tickle it with a feather to excite vomiting.

Vomiting may be caused by giving warm water, with a teaspoonful of mustard to the tumblerful, well stirred up. Sulphate of zinc (white vitriol) may be used in place of the mustard, or powdered alum. Powder of ipecacuanha, a teaspoonful rubbed up with molasses, may be employed for children. **Tartar emetic should never be given**, as it is excessively depressing, and uncontrollable in its effects. The stomach pump can only be used by skillful hands, and even then with caution.

Opium and Other Narcotics—After vomiting has occurred cold water should be dashed over the face and head. The patient must be kept awake, walked about between two strong persons, made to grasp the handles of a galvanic battery, dosed with strong coffee, and vigorously slapped. **Belladonna** is an antidote for opium and for morphia, etc., its active principles; and, on the other hand, the latter counteract the effects of belladonna. But a knowledge of medicine is necessary for dealing with these articles.

Strychnia—After emetics have been freely and successfully given, the patient should be allowed to breathe the vapor of sulphuric ether, poured on a handkerchief and held to the face, in such quantities as to keep down the tendency to convulsions. Bromide of potassium, twenty grains at a dose, dissolved in syrup, may be given every hour.

Alcoholic Poisoning should be combatted by emetics, of which the sulphate of zinc, given as above directed, is the

best. After that, strong coffee internally, and stimulation by heat externally, should be used.

Acids are sometimes swallowed by mistake. Alkalies, lime water, magnesia, or common chalk mixed with water, may be freely given, and afterward mucilaginous drinks, such as thick gum water or flaxseed tea.

Alkalies are less frequently taken in injurious strength of quantity, but sometimes children swallow lye by mistake. Common vinegar may be given freely, and then castor or sweet oil in full doses—a tablespoonful at a time, repeated every half hour or two.

Nitrate of silver when swallowed is neutralized by common table salt freely given in solution in water.

The salts of **mercury** or **arsenic** (often kept as bedbug poison), which are powerful irritants, are apt to be very quickly fatal. Milk or the whites of eggs may be freely given, and afterwards a very thin paste of flour and water. In these cases an emetic is to be given **after** the poison is neutralized.

Phosphorus paste, kept for roach poison or in parlor matches, is sometimes eaten by children, and has been willfully taken for the purpose of suicide. It is a powerful irritant. The first thing to be done is to give freely of magnesia and water; then to give mucilaginous drinks, as flaxseed tea, gum water or sassafras pith and water; and lastly, to administer finely-powdered bone-charcoal, either in pill or in mixture with water.

In no case of poisoning should there be any avoidable delay in obtaining the advice of a physician, and, meanwhile, the friends or bystanders should endeavor to find out exactly what has been taken, so that the treatment adopted may be as prompt and effective as possible.

Frost-Bite Remedy

Camphor Powder	gr. 90
Lanolin	av. oz. 1
Petrolatum	av. oz. 1
Hydrochloric Acid	fl. dr. 1
To be applied evenings.	

USING THE HYPODERMIC SYRINGE ON AN EXPLORING VOYAGE OR TRIP

Dr. H. Plympton, the well known surgeon, an ardent sportsman and camper, wrote the following article, which can be easily understood by every layman, and which gives directions for using the syringe and four remedies which are most likely to be needed.

These four remedies are:

First—Potassium permanganate in half-grain tablets.

Second—Cocaine and morphine tablets, composed of cocaine, one-fifth grain; morphine, one-fortieth grain; soda chlor., one-fifth grain.

Third—Morphine in one-quarter grain tablets.

Fourth—Strychnia in one-fortieth grain tablets.

These four remedies are all that are absolutely necessary for emergencies, such as venomous insect, reptile or snake bite, exhaustion, shock, heart failure and the need of minor surgical operations and allaying intense pain.

The object of hypodermic medication is to get the remedy into the blood as quickly as possible and to introduce it as near as may be to the seat of injury or the pain. To insure its rapid assimilation by the blood the medicine should be injected just between the skin and the muscles underneath; in other words, into the fat.

Dissolve the tablet to be used in the proper amount of water, or put any solution to be used into a teaspoon or what you may have that will hold it. A leaf properly folded will do; even the hollow of the hand in an emergency. You will find a wire run through the hollow needle to keep it clear. Remove this. Remove the cap from the end of the syringe and suck up the solution from the teaspoon by drawing out the piston of the syringe. Screw the needle firmly on the end of the syringe from which the cap was removed. Hold the syringe with the needle pointing upwards and press gently on the piston until the fluid begins to come out of the needle. This is to force all the air out of the syringe.

Now take up a fold or pinch of skin between the thumb and forefinger, insert the needle with a rotary motion of the syringe, as when boring a hole with an awl, being care-

ful not to press on the piston while so doing. Keep the needle in a line with the line of the fold and it will be in correct position.

The needle will slip through the skin quickly and almost painlessly. Push it in its full length. Now press firmly on the piston and force it in slowly until the contents have been injected, being careful to keep the syringe in position. Withdraw the needle, and with the thumb press on the little hole made by the needle; with the first and second fingers rub the swelling made by the injected fluid for a few moments and it will disappear, leaving nothing but a tiny red spot.

If the injection be made between the skin and the muscles, as described, it may be made anywhere on the body, although just over a bone that is close to the surface, as a shin bone, or on the back of the hand, are places to be avoided. Also in the bend of the elbows and knees and in the armpits are vessels that would be injured by the careless use of the syringe. The outside of the forearm or the upper arm, the calf of the leg, or the thigh, the big muscles of the buttocks, and the shoulder, and anywhere on the back are all places where the needle may be used without hesitation.

A short needle, three-eighths of an inch long, accompanies most outfits, and this may be used without taking up a fold of the skin; simply jabbed quickly and firmly as deep as it will go straight into any one of the big muscles.

The dangers in the use of the hypodermic are practically nothing. Exercise the same amount of care as in administering medicine by the mouth and no harm can be done; and, as in the case of a rattlesnake wound, the advantages are so immeasurably ahead of any treatment by the mouth; even if it were dangerous, it would be worth taking a chance.

Be sure that the tablet is thoroughly dissolved, or you may force a piece into the needle and spoil it. Ten drops of water will dissolve any one tablet, and fifteen will suffice for any two, especially if the water be warm. Do not use more than this, unless by direction. After using the syringe, and before removing the needle, draw up some water and eject it to clear the needle. A little vaseline or gun grease on the wire will prevent the needle from rusting.

For venomous insect and snake bites, tie a piece of small rope, a heavy handkerchief or a bandage loosely around the limb two and one-half inches from the wound and between the wound and the heart. (If the wound be on the face of the body, this is manifestly impossible.) Tighten this binder by twisting a stick in it till the binder sinks into the flesh and is quite painful. This is to stop circulation as much as possible. Prepare the syringe, using a short needle. Dissolve one one-half grain tablet of potassium permanganate in two teaspoonfuls of water. Fill the syringe and inject at once half the contents directly into the swelling made by the bite. Inject the remainder about an inch nearer the body. Use deep injection if possible, otherwise just under the skin. Two more injections must now be made in the immediate neighborhood of the wound, each of them being about half a syringe-full and all between the wound and the bandage. As the swelling of the limb increases, the binder may be gradually loosened, and after half an hour it may be removed entirely.

Immediately after giving the injection of potassium permanganate dissolve one tablet of strychnia sulph. (one-fortieth of a grain) in about fifteen drops of water and inject it into the outside surface of the upper arm, midway between the elbow and the shoulder and just under the skin. Dissolve another strychnia tablet and prepare it in the syringe. Note the symptoms. The first symptoms are excitement, quickened pulse and rapid breathing, followed by depression, shallow breathing and drowsiness. This condition must be treated by tablespoonful doses of brandy or whiskey at half-hour intervals. Three doses will be enough. Large amounts of whiskey will not cure snake bite, **but will do much harm.**

The condition of the respiration must be carefully watched, and if there is a continuance or recurrence of "shallow" or quick breathing, the second syringe-full of strychnia should be injected into the arm as before. This strychnia injection may be repeated at fifteen-minute intervals—one tablet at each injection until five tablets have been given, or the breathing become more nearly normal.

The patient should not be allowed to sleep for more than two hours continuously during the first twenty-four

hours. The bowels should be made to move freely by means of cathartic pills, salts or oil. Cheerful and encouraging suggestions will do much to counteract the depression following the absorption of the poison.

Careful investigation and close observation of properly authenticated cases of rattle-snake poisoning have led to the positive conclusion that a man in good general health will stand an even chance of recovery from a rattle-snake strike without any treatment whatever. With a hypodermic syringe and proper remedies at hand there is no danger of a serious result.

For minor surgical operations the cocaine and morphine tablet should be used as follows: Dissolve one tablet in one teaspoonful of water and take up a syringeful of the solution. Inject half the quantity under the skin, not deep, where the cut is to be made. Almost immediately the skin will become wax-like—this will indicate that the part is benumbed, so that an incision can be made without causing pain. Make a sufficient number of injections to cover the part to be cut. The surface benumbed by each injection will be about the size of a 25-cent piece.

For allaying intense pain and physical suffering morphine should be used by dissolving one tablet (one-quarter grain) in about ten drops of water and injecting it under the skin as near the seat of the pain as possible. If the pain is caused by some injury, such as a broken bone or a severe burn, and is likely to last, a second tablet may be given in fifteen minutes and a third one twenty minutes later. Pain is the antidote for morphine, and as long as pain exists there is no danger from a much larger dose than the above. If, however, the pain arises from some cause, such as cramps, that are likely to end abruptly, the above dose is enough.

For exhaustion, shock, fatigue, hunger, heart failure, strychnia should be used as follows: Dissolve the tablet in ten drops of water and inject into the outside of the arm, midway between the elbow and shoulder. The condition of exhaustion, whether from great exertion, loss of blood, or hunger has caused a marked depression of the heart's action and the nervous system is noticeably affected. The patient is pale, a cold perspiration covers the face, the

breathing is shallow and quick, and the pulse is faint and very rapid. One injection will show a decided effect, but if a second is necessary fifteen minutes afterward do not hesitate to give it.

TREATMENT OF WOUNDS, GUNSHOT RIFLE, ETC., ETC.

Wounds are injuries of the outer tissues in any portion of the body, in which an opening is made in the skin and more or less of the deeper tissues. The different varieties of wounds are cut or incised, torn or lacerated, bruises or contusions, pierced or punctured wounds, including gun shot and poisoned wounds.

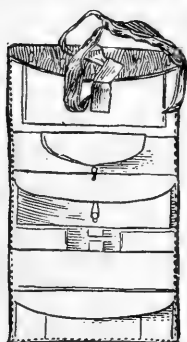
Cut or Incised Wounds are the result of being injured with sharp cutting instruments, such as knives, razors and swords. The edges of the wound are clean cut, and when brought together fit accurately and completely close the wound. One of the principal dangers of such a wound is bleeding.

Torn or Lacerated Wounds are the result of blows with blunt instruments, such as clubs, stones or where a person is injured by machinery or the bursting of explosives. In such wounds, where the tissues are irregularly torn, there is much danger on account of inflammation which may set in on account of dirt and germs having been introduced into the wound at the time of the accident. If such a condition exists the wound becomes infected or poisoned, and from such wounds frequently results blood poisoning.

Bruises or Contusions are also the result of blows with blunt instruments, or of having fallen and struck upon some hard substance, where the injury is not sufficient to produce an opening in the skin. Generally, some of the blood vessels beneath the skin are broken or ruptured, which allows the blood to escape beneath the skin. This produces the well-known black and blue marks.

Pierced or Punctured Wounds are produced by daggers, bayonets, and sharp-pointed instruments, also bullets from revolvers and rifles. Usually, the openings in the skin are small, but the wound itself is quite deep, and important blood vessels

Rubber Specialties for Camp Uses



**Folding Rubber
Toilet Case.**



**Folding Rubber
Bucket.
Open.**



**Rubber Poncho
Blanket Cape.**



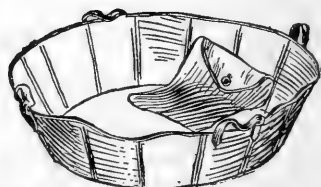
Closed.



**Folding Rubber
Wash Basin.**



**Feather-weight
Rubber Rain Cape.**



**Folding Rubber Bath or
Wash Tub and Pack-
ing Case.**



**Rubber Bag.
Used in Packing.**



**Canoe Folding
Drinking Cup.**



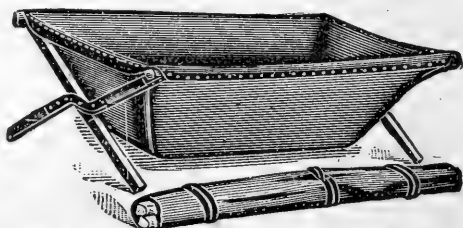
**Rubber
Tumbler.**



**Rain Cape Packed.
(Pocket size.)**



**Tobacco
Pouch.**



**Gold Medal Folding Rubber Bath Tub.
(Adult Size.)**

and vital organs may be injured. The danger from such wounds depends upon whether large blood vessels or some important internal organ has been seriously injured so as to interfere with its function. Inflammation and blood poisoning frequently follow, and the shock to the nervous system is usually severe. Results are often fatal.

Poisoned Wounds are the result of the bites of venomous reptiles; animals and insects, where there had been injected through the skin into the tissues some poisonous virus peculiar to the reptile, animal or insect. Such wounds are usually in the nature of a punctured wound with a small opening, although in the case of bites from a mad dog, the skin and tissues may be torn and lacerated.

In all cases of severe wounds, with severe hemorrhages, always send for a surgeon. Wounds heal in two ways. First, by primary union or first intention; that is the best and quickest way. It takes but a short time, and the resulting scar is small and scarcely disfiguring. Incised or clean-cut wounds usually heal in this way. The second method is that of granulation or second intention, and the process is slow and the scar usually large and ugly. Lacerated and torn wounds usually heal this way on account of the fact that the edges of the wound are ragged and cannot be brought together, and, as a rule, such wounds inflame and discharge pus.

A most important thing to remember in the treatment of wounds of any kind is the absolute necessity of perfect cleanliness. By keeping wounds **clean** and preventing dirt or germs from getting into them we are able to prevent infection and blood poisoning. If a wound is clean-cut and with no dirt in it, such a wound as would be made by a knife or sharp instrument apply an antiseptic sterilized dressing and bandage. If a wound is torn and full of dirt and foreign particles, these should be removed with utmost care by washing out the wound with absolutely clean water and sterilized gauze sponges. There is nothing better to cleanse a wound with than boiled water. The hands of the person cleansing any kind of a wound should be made as clean as possible by washing with hot water and soap, and scrubbing with a good, hard brush.

Never use a solution of carbolic acid in treating wounds of the hand, fingers, feet and toes, as many cases are on record where it has produced gangrene or death of the tissues, and the

parts have had to be amputated. If it is desirable to use a good antiseptic solution, use lysol, one teaspoonful to a quart of hot water; this makes a nice, clean, soapy solution.

Never apply cobwebs or tobacco leaves or juice to cuts or wounds. These are very dirty and improper methods of treatment and might be the means of causing blood poisoning, or even lockjaw and death.

Treatment of Incised Wounds—One of the first things to be done is to stop bleeding, which at times may be quite profuse, and even dangerous. This should be done by the methods already described under that lesson. The next important thing is the cleaning of the wound; any foreign substance or dirt which would be liable to poison the wound should be carefully removed, being careful to see that the fingers are perfectly clean before doing so. After every foreign substance has been removed, the wound being thoroughly cleansed, the next thing is to bring the edges of the wound as near together as possible, and then bandage firmly with either a triangular or roller bandage. It is very important that this compress should be absolutely clean and free from germs, and the best one to use is an antiseptic compress made especially for that purpose, found in all first-class first aid packages, and which has been thoroughly sterilized and disinfected.

Treatment of Lacerated Wounds—Such wounds usually have ragged edges, and it is almost impossible to bring the edges together. Bleeding is usually severe and even dangerous, and is frequently accompanied by severe nervous shock. Such wounds should be treated practically the same as incised wounds; bleeding must be controlled, dirt and foreign substances must be removed, and a clean compress applied. If shock is present, this condition must also be treated according to rules laid down in another lesson.

Treatment of Bruises or Contusions—Bruises or contusions are usually slight and simple affairs. There are no cuts or bleeding to be treated. They can be treated by making cold or hot applications, or by applying compressions soaked in hot or cold water, or some mild antiseptic solution. Bandage and keep the parts at rest.

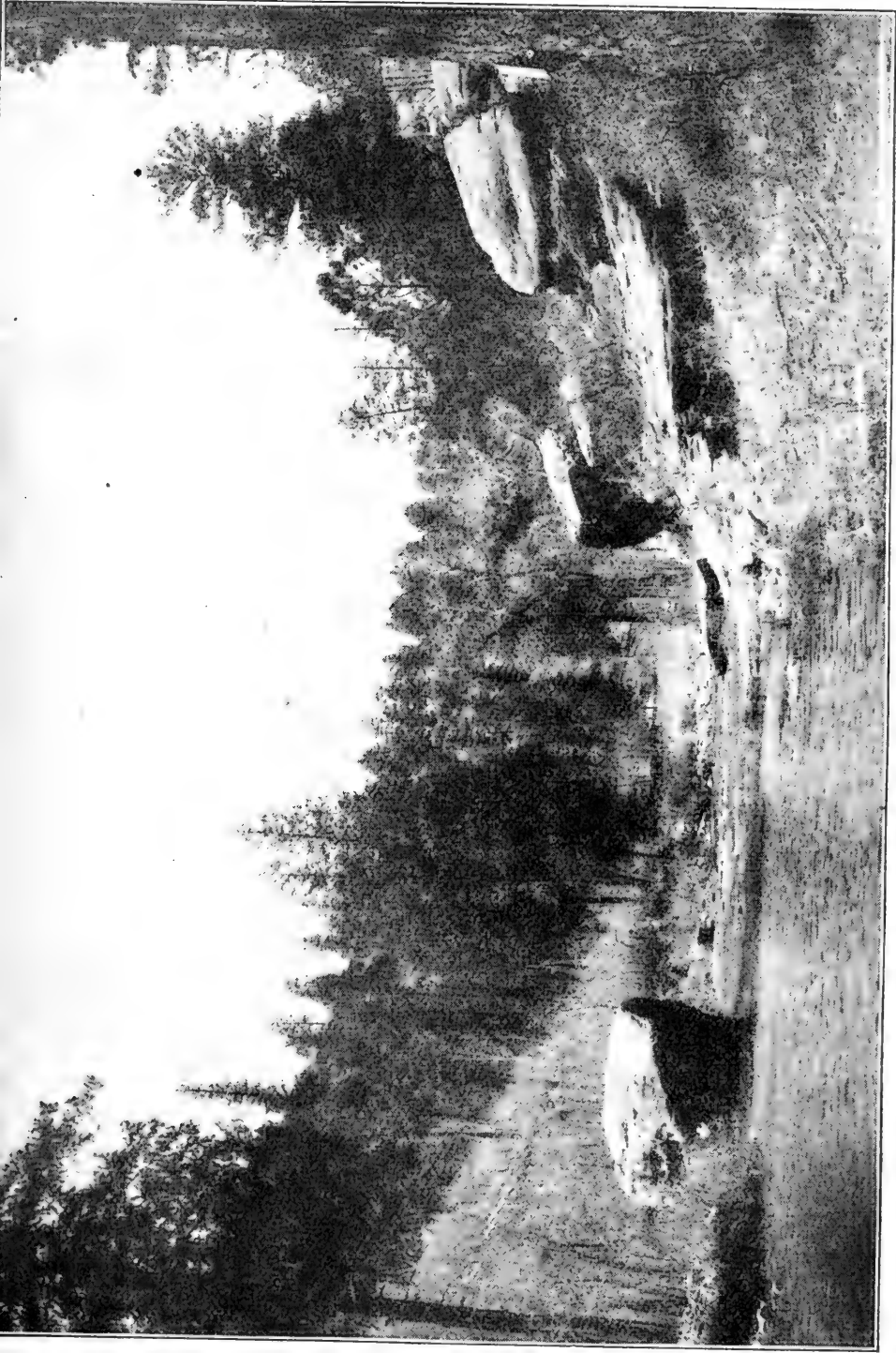
Treatment of Punctured Wounds—Punctured wounds are frequently very severe and dangerous on account of internal or deep-seated bleeding with injuries to the internal organs,

accompanied by severe shock, and require the immediate attention of a surgeon. They frequently contain foreign bodies, such as bullets, slivers, etc., which must be removed, but only by a competent surgeon. The wound or entrance should be thoroughly cleansed and an antiseptic compress applied and the patient removed to a place where he can receive proper surgical treatment.

Treatment of Poisoned Wounds—The object of treatment in such wounds, especially snake bites or the bites of mad dogs, is to prevent the poison from being absorbed and carried by the blood to the nervous system and vital organs. The danger is not in the wound itself, but from the effects of the poisonous substance introduced into the wound at the time of the injury. If an extremity, such as the hands, feet, legs or arms are bitten, bind a piece of string, handkerchief or rubber tubing around the part a few inches above the wound. Next it is well to apply suction with the mouth, so as to remove as much of the poison as possible. This is not a dangerous proceeding, provided there are no cuts present in the mouth. Any further treatment should be left to a surgeon, and usually consists of burning or cauterizing the wound and treating the depression or shock which usually accompanies such bites. Cauterization is accomplished by thoroughly burning out the wound with some strong acid, such as nitric or carbolic, or by burning with a red-hot poker, knitting needle or small knife blade. After this the wound should be dressed the same as any other wound, with an antiseptic compress.

Splinters—The danger of splinters and thorns under the skin or fingernails is that at the time of insertion they carry a certain amount of dirt with them and, acting as a foreign body, inflammation and suppuration set in, with a result that pus or matter collects under the skin, and this might result in blood poisoning.

To remove a splinter or thorn slip the point of a penknife under the protruding end of the splinter, catching it firmly against the blade with the thumbnail and draw it out, or by using a pair of fine pincers. If the end of a splinter does not protrude the skin over it can be pricked away with the point of a needle until the end of the splinter is uncovered, then it can be easily removed. If the splinter is under a fingernail, remove in the same way. If, however, it is broken off under the nail the



nail over the splinter should be scraped thin and a little V-shaped piece of the nail cut out over the splinter, when it can be readily drawn out.

Snake Bite—Do not stop to kill the snake. Tear open the clothing to expose the wound. Tie a handkerchief, strap or rope quickly around the limb above the wound. Draw it tight enough to stop circulation. Better still, tie it loosely, and then twist it by means of a stick inserted in the knot. Take the tip of a knife blade and open the one or two holes made by the snake's fangs. The best way for a layman to do this is to press the blade **down** into the wound and **cut outward**; **cut lengthwise** rather than around the limb. Be careful not to **cut an artery**, but if bleeding occurs it can be stopped by **pressure**. Let the blood run **from** the knife cut. At the **same time** rub the wound with the fingers in order to dislodge any of the tenacious poison which remains.

An oft practiced and successful plan **is** to suck the wound, thereby extracting the poison; there is no danger from the poison taken into the mouth, but it must be expectorated and not swallowed. Wash the wound with whisky, rather than give whisky to the sufferer. Take the **patient** to a surgeon as soon as possible, keeping the pressure **applied**.

Bites of Dogs—Wash with antiseptic soap and apply harts-horn. If the dog has been sick the wound may be sucked after cleansing.

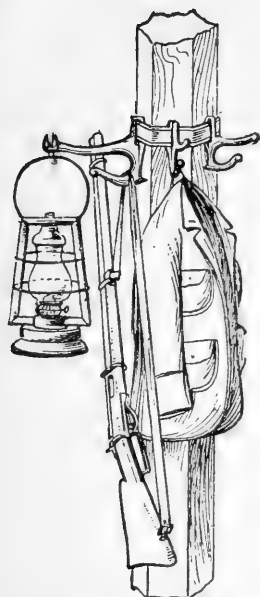
Cases of hydrophobia are very rare, but serious. In all cases of dog bite summon a surgeon and take his advice.

Stings of Scorpions, Centipedes, Tarantulas and Insects—Apply hartshorn at the point where the sting entered, then apply cold water or ice and summon a surgeon.

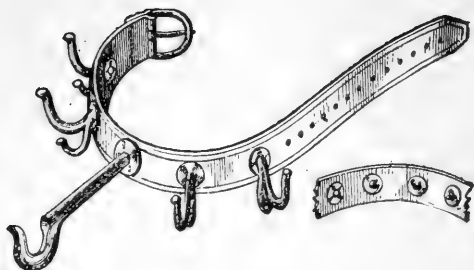
As a rule, an insect stinging will leave his sting in the wound. This should be pressed out, if possible, either by pressing on the skin at its side with a knife blade, or a watch key's open center pressed vertically upon it.

The stings of ordinary insects, such as spiders and mosquitoes, should be wet with a solution of hartshorn or table salt. Cold water or wet earth may also be applied.

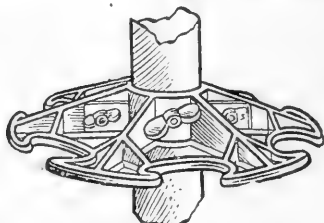
Tent Pole Accessories, Hangers, etc.,



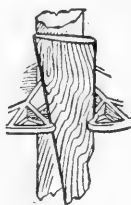
2—Pocket Tent Pole Cloth-
ing, Lantern and Equip-
ment Hanger.



6—Shows No. 2 Removed from Tent Pole.



2.



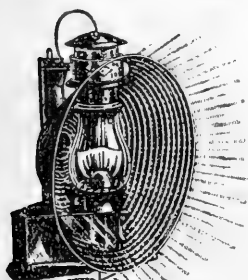
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4.

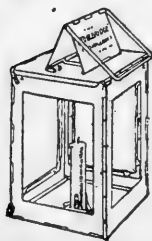


3.



3—Camp Lantern.

1—2—3—4—Tent Pole Gun Rack for 3 to 6 Guns
or Rifles.

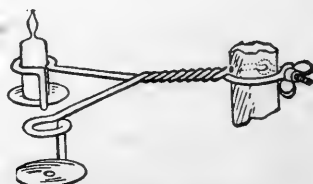


Open.



Closed.

1—Folding Camp Lantern, Open and Closed.



Tent Pole Candle Holder.

WHAT TO DO

If an artery is cut, red blood spurts. Compress it above the wound. If a vein is cut, dark blood flows. Compress it below and above.

If choked, go upon all fours and cough.

For slight burns, dip the part in cold water; if the skin is destroyed, cover with varnish or linseed oil.

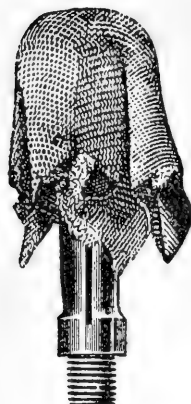
For apoplexy, raise the head and body; for fainting, lay the person flat.

Send for a physician when a serious accident of any kind occurs, but treat as directed until he arrives.

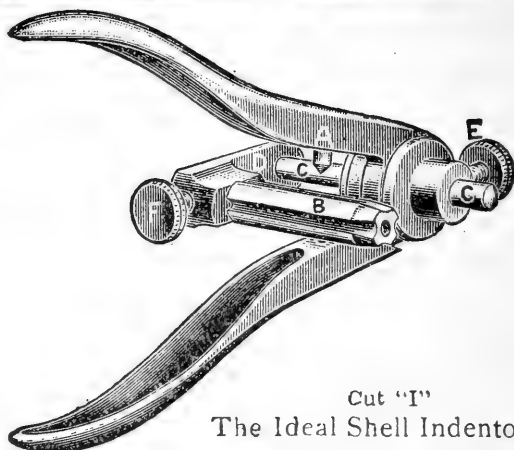
Scalds and Burns—The following facts cannot be too firmly impressed on the mind of the reader, that in either of these accidents the first, best and often the only remedies required, are sheets of wadding, fine wool, or carded cotton, and in the default of these, violet powder, flour, magnesia, or chalk. The objects for which these several articles are employed is the same in each instance; namely, to exclude the air from the injured part; for if the air can be effectually shut out from the raw surface, and care is taken not to expose the tender part till the new cuticle is formed, the cure may be safely left to nature. The moment a person is called to a case of scald or burn, he should cover the part with a sheet, or a portion of a sheet, of wadding, taking care not to break any blister that may have formed, or stay to remove any burnt clothes that may adhere to the surface, but as quickly as possible envelop every part of the injury from all access of the air, laying one or two more pieces of wadding on the first, so as effectually to guard the burn or scald from the irritation of the atmosphere; and if the article used is wool or cotton, the same precaution, of adding more material where the surface is thinly covered, must be adopted; a light bandage finally securing all in their places. Any of the popular remedies recommended below may be employed when neither wool, cotton, nor wadding are to be procured, it being always remembered that that article which will best exclude the air from a burn or scald is the best, quickest, and least painful mode of treatment. And in this respect nothing has surpassed cotton loose or attached to paper as in wadding.

If the skin is much injured in burns, spread some linen pretty thickly with chalk ointment, and lay over the part, and

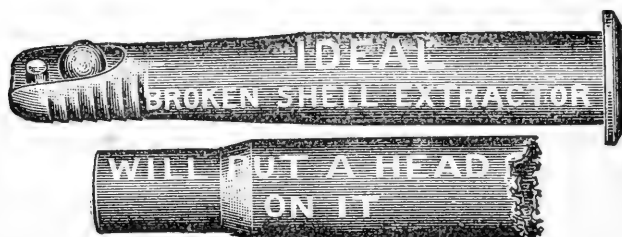
A Page of Specialties



Adjustable Cleaner
with Scratch Cloth



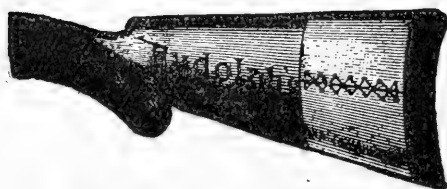
Cut "I"
The Ideal Shell Indentor.



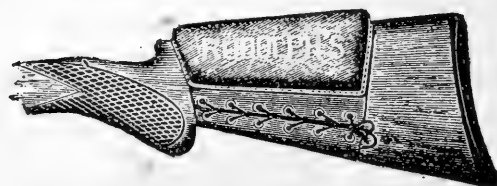
Cut "J"



Adjustable
Cleaner
No. 1



The Recoil Pad.



The Cheek Pad.

give the patient some brandy and water if much exhausted; then send for a medical man. If not much injured, and very painful, use the same ointment, or apply carded cotton dipped in lime water and linseed oil. If you please, you may lay cloths dipped in ether over the parts, or cold lotions. Treat scalds in same manner, or cover with scraped raw potato; but the chalk ointment is the best. In the absence of all these, cover the injured part with treacle, and dust over it plenty of flour.

Body in Flames—Lay the person down on the floor of the room, and throw the table cloth, rug, or other large cloth over him, and roll him on the floor.

Dirt in the Eye—Place your fore-finger upon the cheek-bone, having the patient before you; then slightly bend the finger, this will draw down the lower lid of the eye, and you will probably be able to remove the lirt; but if this will not enable you to get at it, repeat this operation while you have a netting-needle or bodkin placed over the eyelid; this will turn it inside out, and enable you to remove the sand, or eyelash, etc., with the corner of a fine silk handkerchief. As soon as the substance is removed, bathe the eye with cold water, and exclude the light for a day. If the inflammation is severe, let the patient use a refrigerant lotion.

Lime in the Eye—Syringe it well with warm vinegar and water in the proportion of one ounce of vinegar to eight ounces of water. exclude light.

Iron or Steel Spiculae in the Eye—These occur while turning iron or steel in a lathe, and are best remedied by doubling back the upper or lower eyelid, according to the situation of the substance, and with the flat edge of a silver probe, taking up the metallic particle, using a lotion made by dissolving six grains of sugar of lead and the same of white vitriol, in six ounces of water, and bathing the eye three times a day till the inflammation subsides. Another plan is—Drop a solution of sulphate of copper (from one to three grains of the salt to one ounce of water) into the eye, or keep the eye open in a wineglassful of the solution. Bathe with cold lotion, and exclude light to keep down inflammation.

Dislocated Thumb—This is frequently produced by a fall. Make a clove hitch, by passing two loops of cord over the thumb, placing a piece of rag under the cord to prevent it cut-

Portable Boats, Canoes and Skiffs



Ideal Steel Boat.

Flat Bottom Steel Fishing Boat, 12 ft. long; width 41½ inches;
Depth 12 inches: weight, 115 lbs. 3 persons.



Steel Sectional Boat.

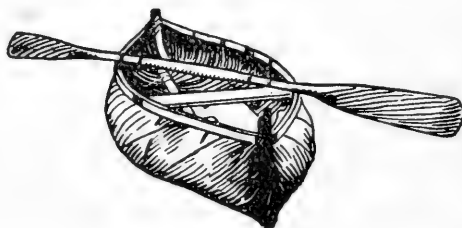
14x3 ft. 3 in. Depth 14 in. Weight 103 lbs.



Packed.



Steel Family Boat, 16x4 ft.; depth 15 and 25 in.; weight 160 lbs.,
For Six Persons:



Folding
Canvas Boat

8, 12, 15 foot
Sizes.



All Steel, Canoe Shape, Hunting Boats.



Duck Hunter's Favorite.

Any Size for Individual, Party, Outfit or Club Uses

ting the thumb; then pull in the same line as the thumb. Afterwards apply a cold lotion.

Cuts and Wounds—Clean cut wounds, whether deep or superficial, and likely to heal by the first intention, should always be washed or cleaned, and at once evenly and smoothly closed by bringing both edges close together, and securing them in that position by adhesive plaster. Cut thin strips of sticking plaster, and bring the parts together; or if large and deep, cut two broad pieces, so as to look like the teeth of a comb, and place one on each side of the wound, which must be cleaned previously. These pieces must be arranged so that they shall interlace one another, then, by laying hold of the pieces on the right side with one hand, and those on the other side with the other hand, and pulling them from one another, the edges of the wound are brought together without any difficulty.

Ordinary cuts are dressed by thin strips, applied by pressing down the plaster on one side of the wound, and keeping it there and pulling in the opposite direction; then suddenly depressing the hand when the edges of the wound are brought together.

Contusions are best healed by laying a piece of folded lint, well wetted with extract of lead, or boracic acid, on the part, and, if there is much pain, placing a hot bran poultice over the dressing, repeating both, if necessary, every two hours. When the injuries are very severe, lay a cloth over the part, and suspend a basin over it filled with cold lotion. Put a piece of cotton into the basin, so that it shall allow the lotion to drop on the cloth, and thus keep it always wet.

Hemorrhage, when caused by an artery being divided or or jerks, and being of a bright scarlet color. If a vein is injured torn, may be known by the blood issuing out of a wound in leaps or jerks, and being of a bright scarlet color. If a vein is injured, the blood is darker and flows continuously. To arrest the latter, apply pressure by means of a compress and bandage. To arrest arterial bleeding, get a piece of wood (part of a broom handle will do), and tie a piece of tape to one end of it; then tie a piece of tape loosely over the arm, and pass the other end of the wood under it; twist the stick round and round until the tape compresses the arm sufficiently to arrest the bleeding, and then confine the other end by tying the string around the arm. A compress made by enfolding a penny piece in several folds of lint

or linen should, however, be first placed under the tape and over the artery. If the bleeding is very obstinate, and it occurs in the arm, place a cork underneath the string, on the inside of the fleshy part, where the artery may be felt beating by any one; if in the leg, place a cork in the direction of a line drawn from the inner part of the knee towards the outer part of the groin. It is an excellent thing to accustom yourself to find out the position of these arteries, or, indeed, any that are superficial, and to explain to every person in your house where they are, and how to stop bleeding. If a stick cannot be got take a handkerchief, make a cord bandage of it, and tie a knot in the middle; the knot acts as a compress, and should be placed over the artery, while the two ends are to be tied around the thumb. Observe always to place the ligature between the wound and the heart. Putting your finger into a bleeding wound, and making pressure until a surgeon arrives, will generally stop violent bleeding.

Bleeding from the Nose, from whatever cause, may generally be stopped by putting a plug of lint into the nostrils; if this does not do, apply a cold lotion to the forehead; raise the head, and place over it both arms, so that it will rest on the hands; dip the lint plug, slightly moisten it, into some powdered gum arabic, and plug the nostrils again; or dip the plug into equal parts of powdered gum arabic and alum, and plug the nose. Or the plug may be dipped in Friar's balsam, or tincture of kino. Heat should be applied to the feet; and, in obstinate cases, the sudden shock of a cold key, or cold water poured down the spine, will often instantly stop the bleeding. If the bowels are confined take a purgative. Injections of alum solution from a small syringe into the nose will often stop hemorrhage.

Violent Shocks will sometimes stun a person, and he will remain unconscious. Untie strings, collars, etc.; loosen anything that is tight, and interferes with the breathing; raise the head; see if there is bleeding from any part; apply smelling-salts to the nose, and hot bottles to the feet.

In Concussion, the surface of the body is cold and pale, and the pulse weak and small, the breathing slow and gentle, and the pupil of the eye generally contracted or small. You can get an answer by speaking loud, so as to arouse the patient. Give a little brandy and water, keep the place quiet, apply warmth; and do not raise the head too high. If you tickle the feet the patient feels it.

In Compression of the Brain from any cause, such as apoplexy, or a piece of fractured bone pressing on it, there is loss of sensation. If you tickle the feet of the injured person he does not feel it. You cannot arouse him so as to get an answer. The pulse is slow and labored; the breathing deep, labored, and snorting; the pupil enlarged. Raise the head, loosen strings or tight things, and send for a surgeon. If one cannot be got at once, apply mustard poultices to the feet and thighs, leeches to the temples, and hot water to the feet.

Choking—When a person has a fish bone in the throat, insert the forefinger, press upon the root of the tongue, so as to induce vomiting; if this does not do, let him swallow a large piece of potato or soft bread; and if these fail, give a mustard emetic.

Fainting, Hysterics, Etc.—Loosen the garments, bathe the temples with water or eau-de-Cologne; open the window, admit plenty of fresh air, dash cold water on the face, apply hot bricks to the feet, and avoid bustle and excessive sympathy.

Drowning—Attend to the following essential rules:—1. Lose no time. 2. Handle the body gently. 3. Carry the body face downwards, with the head gently raised, and never hold it up by the feet. 4. Send for medical assistance immediately, and in the meantime act as follows: 5. Strip the body; rub it dry, then wrap it in hot blankets, and place it in a warm bed in a warm room. 6. Cleanse away the froth and mucus from the nose and mouth. 7. Apply warm bricks, bottles, bags of sand, etc., to the armpits, between the thighs, and to the soles of the feet. 8. Rub the surface of the body with the hands inclosed in warm, dry worsted socks. 9. If possible, put the body into a warm bath. 10. To restore breathing, put the pipe of a common bellows into one nostril, carefully closing the other, and the mouth; at the same time drawing downwards, and pushing gently backwards, the upper part of the windpipe, to allow a more free admission of air; blow the bellows gently, in order to inflate the lungs, till the breast be raised a little; then set the mouth and nostrils free, and press gently on the chest; repeat this until signs of life appear. The body should be covered the moment it is placed on the table, except the face, and all the rubbing carried on under the sheet or blanket. When they can be obtained, a number of tiles or bricks should be made tolerably hot in the fire, laid in a row on the table, covered

with a blanket, and the body placed in such a manner on them that their heat may enter the spine. When the patient revives, apply smelling-salts to the nose, give warm wine or brandy and water. Cautions—1. Never rub the body with salt or spirits. 2. Never roll the body on casks. 3. Continue the remedies for hours without ceasing.

Hanging—Loosen the cord, or whatever it may be by which the person has been suspended. Open the temporal artery or jugular vein, or bleed from the arm; employ electricity, if at hand, and proceed as for drowning, taking the additional precaution to apply eight or ten leeches to the temples.

Apparent Death from Dunkennes—Raise the head; loosen the clothes, maintain warmth of surface, and give a mustard emetic as soon as the person can swallow.

Apoplexy and Fits Generally—Raise the head; loosen all tight clothes, strings, etc.; apply cold lotions to the head, which should be shaved; apply leeches to the temples, bleed, and send for a surgeon.

Suffocation from Noxious Gases, Etc.—Remove to the fresh air; dash cold vinegar and water in the face, neck, and breast; keep up the warmth of the body; if necessary, apply mustard poultices to the soles of the feet and to the spine, and try artificial respirations as in drowning, with electricity.

Lightning and Sunstroke—Treat the same as apoplexy.

For an Ideal Medical Outfit—One can purchase First Aid to the Injured Packets, ranging in price from 25c to \$5, which cover almost any emergency which may arise on exploring trips, in the woods or camp.



What Medicine Do We Need

Man seldom wanders so far in search of health, or finds it in such abundance, but what he has occasion to turn to physic for relief from some real or imaginary ill.

Every camp should be provided with a medicine-chest, containing such articles as are most likely to be required in the ailments of camp-life. This chest may be made six inches wide, ten inches long and six inches deep. It should contain the following articles, well labeled, and separated by corrugated paper to prevent breakage:

No. 1. Anti-malarial pills. Each pill contains:

Quinia, bisulphate, 2 grains;

Ferri Ferrocyanidi, 1 grain.....100

No. 2. Fluid Extract of Gelsemium..... 1 ounce

No. 3. Compound cathartic pills (improved)...100

No. 4. Pond's Extract 8 ounces

No. 5. Vaseline (carbolized) 2 ounces

No. 6. Roller bandages, 2-inch..... 6

No. 7. Small scissors 1 pair

No. 8. Surgeon's silk 1 skein

No. 9. Surgeon's needles 2

No. 10. Rubber adhesive plaster..... 4 yards

No. 11. Soap liniment 4 ounces

No. 12. Antipyrin pills (5 grains).....100

No. 13. R. Tinct. Opii. Camph. oz. iii.

Spts. Ammo. Arom., oz. i.

Magnesia (Husband's) oz. i.

Aq. Menth. pap. q drs. iv.

Teaspoonful in water every three hours.

No. 14. Lint 2 yards

No. 15. Hypodermic syringe and contents.

Portable, Canvas, Steel Boats, Etc.



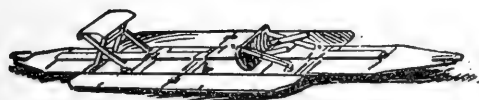
Ready for Use.

The Osgood Pattern.

For 1 to 4 Persons.

Lightest Boat Made.

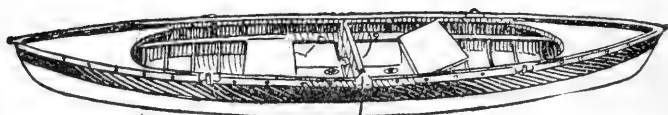
30 to 75 lbs.



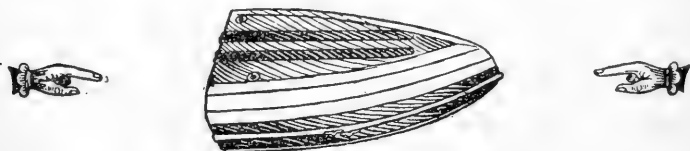
Ready to pack up.



The entire boat and chest
(shipped as baggage)



The Double End Sectional Fishing Boat with Fish Tanks.



Closed.

Steel Trunk Folding.

(Pack Outfit therein.)



Length 11½ ft. Width 30 in. Depth 10 in. Weight 120 lbs.

Holds Entire Outfit.

Boats of Canvas, Steel or Aluminum, Any Size.

TRAPPERS CRAFT

No man can be a successful trapper if he neglects to observe and study out the habits and peculiarities of animals. He must wait, watch, learn, so as to meet cunning with skill; he must acquire knowledge by **experience and observation**. They are a hundred times more crafty, patient, observing and woods-wise than he. **They know what he doesn't**—every nook and crook, stone, path, log, gully, water or runway. They are familiar with every twist, turn, rock, bend, clump of woods, patch of brush, high or low place, shade and color of ground, all the **hidden ways** and the concealed places: **they can disguise their scent or trail, and you can't**; they learn your ways, and you don't learn theirs; they realize your faults and imperfections, and study out your habits and peculiarities, and, **in order to play the game right**, you must meet every move of theirs, **and play the game as do they**. If you are willing and able, go to it, and you are apt to become a fair trapper, and by sticktoitiveness become a good one. You must learn about **baited traps, blind traps, snares, lures, decoys, old and new sets**, and the trick of inventing others, scheming up all sorts of ideas and tricks to fool them, and last but not least be mighty careful to cover up your own **hoof marks**; you must study their ways, their routes, their dispositions; be observing of every little sign you perceive: study their **dens, retreats, watering places feeding spots**, their coming out and their going in; get next to their habits, the foods they eat—**their likes and dislikes**. You must observe the seasonal changes of their methods, and follow the hint by changing yours; and about the time you think you know it all, you are only ready to commence getting the pelts with any degree of success, for even after a lifetime of experience almost, there is something to be learned, for like men, animals learn by experience and none of us know it all.

There are many ways of setting a trap. One of them is to look carefully for trail or sign, and make a set in the most likely places—where the animal passes and repasses. Don't get in the habit of building or mussing up the location for some cute idea, because anything new, strange or un-

familiar immediately makes them suspicious and wary. Try to leave everything exactly as it was or as you find it exactly. This monkey business, **which some books recommend**, makes good reading, **but it doesn't catch furs**. Most trapping is made difficult by the trapper himself, simply because he overdoes things; for instance, he gives more attention to traps than **to the animals habits and their peculiar ways**. If he was to put more time into the subject of the best and worst places, the **right and wrong times and ways**, and learn more about the power of scent, tracking, trailing and the like, he is likely to get furs, while otherwise he is not. No man can possibly excell or succeed in the trappers art unless he makes a thorough study of animal ways. A dozen traps in the hands of a careful man will do more than a hundred with a careless, shiftless one. It isn't your hut or outfit that makes trapping a success; it's your ability and intelligence. The best trappers I ever knew had the **least and poorest outfit and the worst I ever saw had the best**. No amount of ability to fix up around camp or winter hut cuts any figure—the whole trick is done **on the line—there's the rub**. Don't expect too much. Put nearly all your work into preparations, instead of figuring upon big catches. Get busy trying to get small ones, and you are apt to succeed beyond your expectations. Often a new hand at the game, by exercising patience and care, will in a short time exceed that of even the more experienced ones by the simple plan of emulating his achievements, observing and avoiding his failures. When you find an animal has visited the vicinity of a trap, try and fathom out what was wrong. His tracks will tell the story. Try to reason out why you missed him, what was wrong and generally you will find out you were to blame, because **he knew** you had been around and had left danger signals about. The way some folks set traps is equivalent to posting up signs, "keep away," because they leave so very many of their own signs about that success is impossible. You can't be too careful as regards obliterating or hiding all evidence of your having been there, or that a trap is laid for them. Ten to one they know you are around there and are very wary and suspicious, hence you must work so as to fool their eyes and nose both. An old Indian trick is to

put the trap near some place where they positively **must pass** and where in order to pass they must go over them. These likely places are few and far between, but they of all are the **ideal spots** which you must always be on the **lookout for**.

GOOD ANIMALS AND BAD ONES

From time to time you read anecdotes of animals which go to show that they have an appreciation of right and wrong; that a dog, for example, has a conscience as tender as a child's, so far as his dog code goes, and we generally explain it by saying that they have been taught by man what they shall, or shall not do, and that therein lies the secret of the animal's consciousness of right and wrong.

This is a mistake. All through the animal kingdom, the different classes of beasts, birds and reptiles live together in communities, and, as you learn at school, the first necessity of community life is the establishment of "law and order." This is true of man; and it is true of the animals as well.

Crudely speaking, if, in a pack of wolves, there be one wolf that is unruly, he will be cut off from the society of his kind; he will be banished; but in wolfdom banishment means the taking of but one road—the "red road" down the throats of the judge and jurors.

Rogues, Outcasts, Bachelors

In India, the natives are so familiar with the fact that an insubordinate elephant will not be tolerated in his herd that they have given the name of "rogue elephant" to any one that is seen to "herd by himself." These "rogue elephants" are the most dangerous beasts of the forest; they are vicious by nature, and so quarrelsome that the king of the herd expels them, and from that day the outcasts can have no fellowship whatever with reputable elephants.

They become more ugly and dangerous in disposition from their enforced solitude, and take to devising mischief from

the very love of being bad. They are really criminal animals, and are recognized as such by all of their race; no new herd will accept them.

Lone Animals the Worst

There were three of these dangerous elephants, not long ago, that joined forces, and made it their regular pastime to go to a certain roadway through the forest and waylay the natives. They were the terror of the country, for to be caught by the "rogues" was certain death, and there was a long list of victims every month.

At last, a regular hunt was instituted, and the three rogues were killed. Their end was a just one, of course, for these beasts had been young, and had had their chance. They knew right from wrong, but were simply examples of the criminal element in animals grown predominant.

Animals cast out by their kind are usually the most vicious or degenerate of the species—criminals, diseased and most treacherous.

Among hunters there is a saying, "Beware of animals that are isolated from their herds." They are always the most dangerous, and these banished law-breakers are found among all the large, as well as the small game; bison, elk, deer, in this country; the rhinoceros and the hippopotamus in the hot climes.

There are many criminals among dogs, especially among shepherd dogs. One in Australia, valued especially for his strength and for his fidelity to his own sheep, was finally discovered to be guilty of killing the sheep on a neighboring ranch. At night he would sneak off, break into the other fold, and kill and suck the blood of sheep until he was satisfied. Then would come the cunning part of the performance. His coat would betray him, he knew, and so he would make a long circuit to a pond and wash and lick himself clean before he went home.

There seems to be a set form of trial among crows and black birds. The members of the colony gather in a circle around the culprit, and actually try him. Sometimes he is evidently acquitted, but generally he is condemned, and is pecked to death.

In addition to these laws, by which an animal's duty to his neighbors is regulated, they have established rules for defense. When a flock of ducks are feeding, one is always left on guard. While their heads are under water, the sentinel is supposed to be listening and watching, and on the first sign of danger, he gives the warning note, a whistle; or, if the danger be imminent, he gives a cry that means "fly at once." This is true of birds, too; they all have a sentinel, and he never eats until his watch is up.

Two instances may be cited to show that animals sometimes think on matters not at all in the line of their instinct. One is that of Cowper's dog, Beau. The poet was one day walking with the dog on the bank of a pond, when he saw, lying on the water, a lily that he tried to reach and pull in shore with his stick, but though he tried again and again, he failed; and so walked on.

On their way back, when they came to the spot, Beau stopped, looked at his master and then at the lily, and finally jumped into the water, tore up the lily by the root, and brought it ashore and laid it at his master's feet.

The second case is that of a dog that I knew, named Rex. He was a huge mastiff, and was a pet with every one on the place. It was a common remark in the family that Rex "understood every word that was spoken in his hearing."

Unfortunately, when Rex grew old, he became a victim to disease, and a discussion as to chloroforming him took place while he was in the room. He sat and watched his mistress' face, while she, forgetting that he "understood" said:

"Poor Rex! We must do it."

At that Rex got up and walked out of the room, and never returned; nor was he heard of afterwards. Did he understand what was said? He had been listening to English for sixteen years, and he certainly knew every expression of the faces of those he loved.

Indeed, I feel sure that animals judge largely by expression and **read in one's face** their attitude, be it friendly or antagonistic, much as do we in a moving picture read what the silent lips express by actions—as per the old adage, **actions speak louder than words.**

Habits and Peculiarities of Bears

He is a queer animal. In his make-up there seems to be a combination of the characteristics of the human, the cat, the hog, the raccoon, the squirrel and several other animals. Though his natural method of locomotion is on all fours, he can walk upright almost as easily and steadily as a man,



Brown Bear



Black Bear

and there is something most laughably human in the way one of the big brutes will sit up on his haunches and reach a fat forepaw around to scratch his ribs. Often the bear displays an almost human intelligence in the manner in which he carefully evades traps and deadfalls set for his destruction.

Skill of Trained Boxer

With his fore paws the bear can strike a blow with the swiftness and skill of a trained boxer, and many is the woodsman who has found this out to his cost when he has tried to kill one of these animals with a stroke of an ax. One stroke of that great paw will ward off the mightiest blow, and another may send the wielder of the ax spinning twenty feet from the spot. A black bear will ascend a tree with the agility of a cat, and does so frequently to get the various nuts which form a choice bit of his diet.

In general appearance the black bear resembles the hog more than any other animal. The head, with its round skull, sharp snout, pointed ears and bright and beady eyes, is primarily that of the hog, while a bear will eat anything

a hog will. The bear roots about among the leaves in quest of nuts, enters orchards to eat the apples which have fallen on the ground, and, if they are not there, shakes the tree until the fruit comes tumbling down about his ears, wherein he has the advantage of the hog and resembles the human again.

An Expert Fisherman

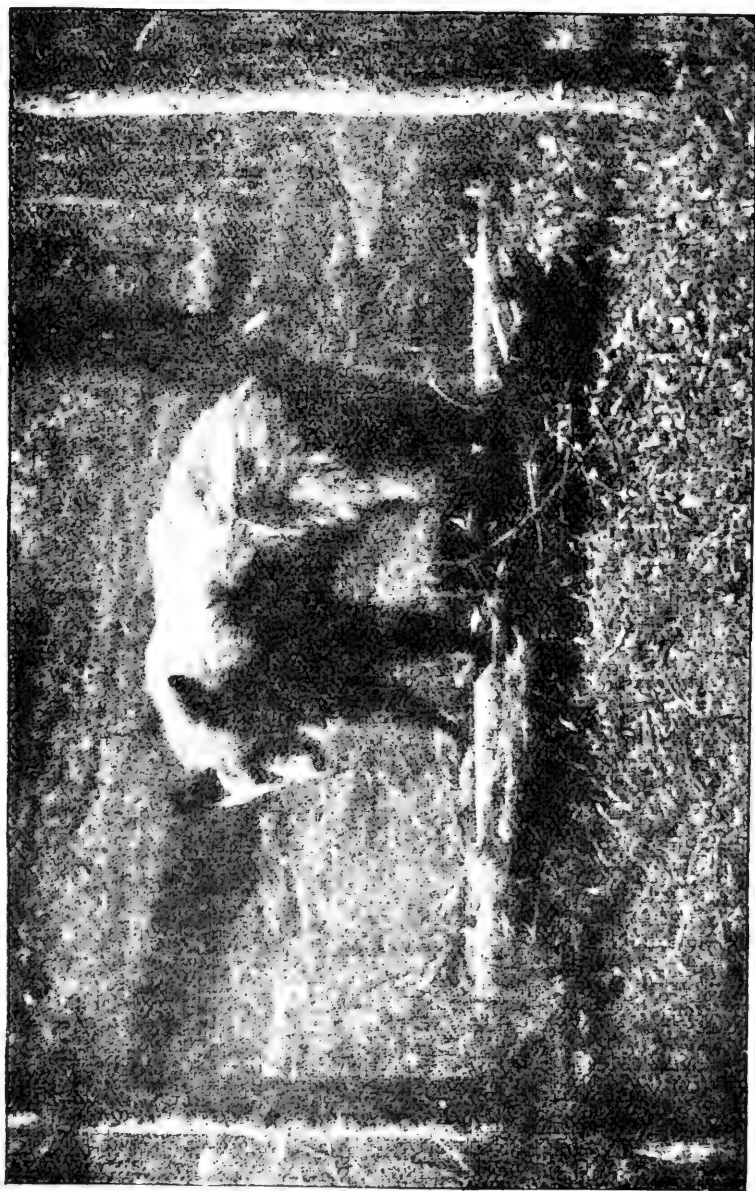
More than one black bear has come to an untimely end because of his propensity for entering cornfields and eating the sweet corn from the stalks, a favorite occupation of the raccoon. Like the raccoon, too, he is an expert fisherman. He will lie full length on a log over some quiet pool and drop a bit of wood or offal of some sort in the water. He watches the bait with his small, bright eyes until some unsuspecting trout or chub comes up to investigate; then a quick swoop of one of those mighty paws lands the fish flopping on the bank and bruin makes a dainty meal.

Hibernates in Winter

When the cold frosts of fall arrive the black bear begins to think of a snug home during the winter months. He looks about until he finds the place that suits him. It may be in a hollow log, and, if the hollow is already the home of 'coons, bruin has no scruples about turning them out. If he can find a cave or deep cleft in the rocks he is equally well satisfied and will sleep fully as comfortable until warm weather comes again, while his waste tissues are replaced by the great rolls of fat which cover his ribs as a result of the summer's foraging.

Touch Awakens Him

Frequently when a bear dens up beneath a blow-down or lies in a hollow log with his snout near the opening, the warmth of his breath melts a hole in the covering of the snow. This hole keeps growing larger until finally it becomes incrustated with ice and then remains a sort of chim-



Brown Bear, Trapped

ney or ventilator for bruin's bed chamber. Woodsmen frequently find these airholes in the snow, and upon investigation find bruin in his den. The animal is not so sound asleep that no noise will awaken him, yet the first touch on any part of his body brings him out of his sleep with a start. When thus aroused the bear is a wicked antagonist. A story is related of two woodsmen who found a bear in this manner a few years ago.

They found the airhole and dug the snow away. They walked and jumped on the log within which bruin was ensconced without arousing him. Then, looking in the hole in the trunk, one of the men saw the bear lying at full length, with his head resting on a paw and his snout toward the opening. The woodsman touched the bear's paw with his ax, and, like a flash, the bear awoke, sent the ax flying out of the man's hand, and, with another rake of his paw laid open the woodsman's leg from knee to ankle. Of course, the beast had no chance, pinned as he was in the hollow trunk, but he was dangerous enough so that his captors took no chances with him.

Extremely Crafty

The cunning shown by bears in avoiding traps set for their destruction is often marvelous. They will often look askance at the most tempting bait and keep clear of the steel jaws, while at other times they will approach the trap gingerly, uncover the wicked steel teeth, send the trap spinning with a cuff of the paw and then eat the bait at their leisure. They will enter the best-constructed pen, rip off the top logs and carry away the bait.

Much-Maligned Animal

The Maine black bear has been a much-maligned animal. Long observation by old hunters shows that the favorite food of the bear is vegetable, nuts, berries, roots, etc. The bear will eat carrion when he finds it, and is particularly fond of putrid

fish, which is used largely in baiting bear traps. Many complaints have been made by farmers in the northern and eastern parts of the state of bears, which have done great damage to their sheep flocks and the farmers are right in their claims, for more than one bear has been killed with the damaging evidence of sheep murder strong upon him.

However that may be, the old hunters say the bear is not naturally a killer of sheep. Once he gets the taste of fresh mutton he is likely to crave for it, but his first taste is excited by hunger, and a hungry bear is not particular about the manner in which he gets his food.

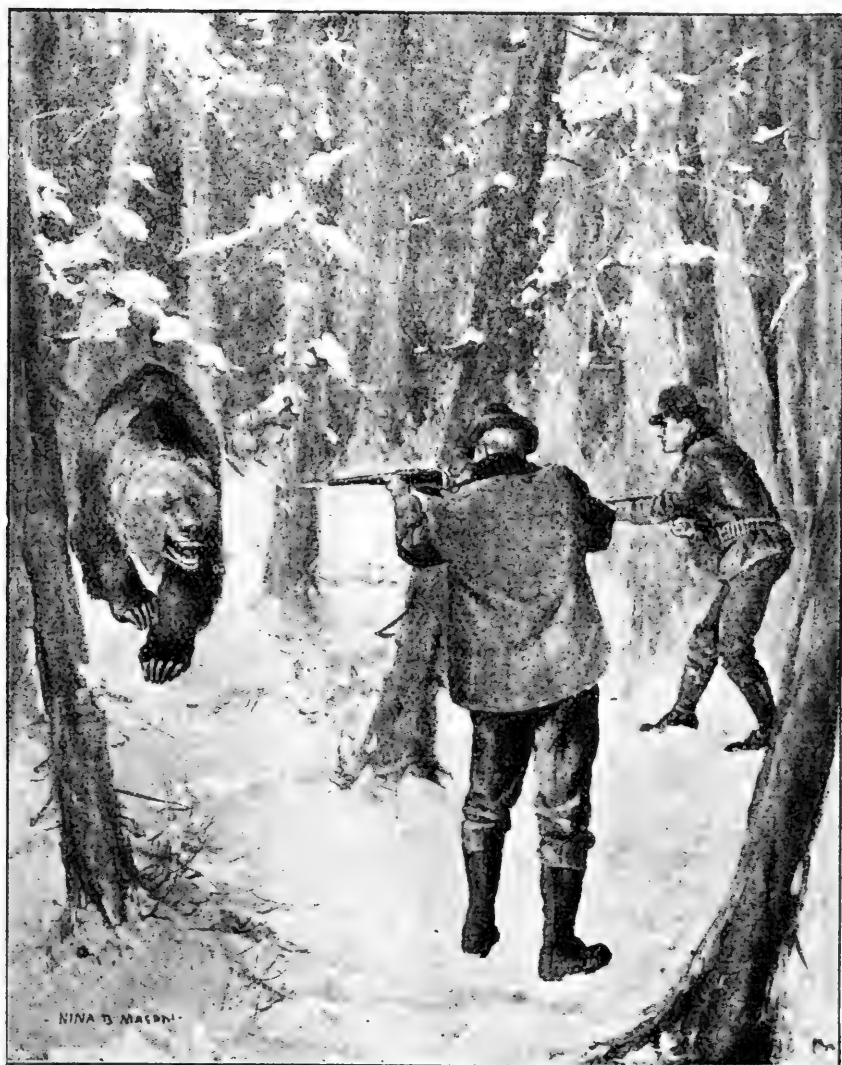
A favorite food of the black bear is insects, such as ants and grubs. To get these the bear will pull to pieces every rotten stump he comes across. These evidences of the bear's grubbing are found in every part of the Maine woods. When the bear finds a stump about which the grubs and ants are running in hundreds he lies down beside it, then, poking his snout into the warm, rotten wood, he lets the insects run all over his snout and licks them off with his long tongue. When the available supply has been exhausted bruin pulls the stump apart until he has finished the last of the insects.

Most bears as a rule will run rather than fight, unless cornered. This big brute, with all his strength, formidable teeth and claws prefers running to fighting on almost all occasions. He is found in every county in the state except the most southerly ones west of Penobscot bay, but is, of course, most numerous in those sections where deer, moose and elk are also found in greatest numbers.

The black bear is very common, and is found throughout the United States and in the British Provinces. He is easily trapped by the large Newhouse bear trap, or the small bear trap. We have seen yearlings, and one two-year-old bear caught by the No. 4 trap when used with a clog. The log bear trap is also used, but its construction makes it so troublesome that the steel trap is much more desirable. In the summer the black bears are found in the coolest parts of the woods. They often hunt for food during the day, but generally prowl around at night. Sometimes the black bear will get caught in a small trap set for

other animals; when caught, he goes from one tree to another, pounding them with the trap until he is free. When the first snow comes, the black bear begins to wander about in search of a cave to hibernate in. At such times it is best to follow up a fresh trail, for you invariably run bruin into his den, and traps may then be set near by, which will catch him the first warm day he comes out. When setting a steel trap for a bear, use a heavy clog in preference to the grapple; the latter is an awkward thing to carry, or have about camp; it is always poking some one in the ribs in a canoe or coat, or tripping one when moving about. When a trapped animal is dragging a grapple through a rough country, it will often catch fast, causing the animal to gnaw its foot off. The clog should be rounded at one end, so as to slide easily along, but should be very heavy so that the animal will tire in dragging it.

A piece of fresh venison, a rabbit or a hare, makes a good bait for the black bear. Where "sign" is seen, set the trap if possible in an open place in the woods, and lay it in a shallow hole scooped in the ground for the purpose; cover the trap lightly with leaves, and entirely conceal the log and chain with any material which can be most easily obtained. A few scraps of meat may be scattered about near the trap, and the bait should be suspended over it. It is a good way to rig a trap with two baits, as follows: Have one large bait hanging about seven feet above the trap, and a smaller one about three feet over it; in cold weather, baits do not throw much scent, and the lower one will attract bruin's notice, and that will call his attention to the big bait, which he is bound to have if possible. Never use small baits. When tramping around, visit places where deer or elk have been dressed, and look for "sign," it will often lead to the capture of many animals, for in elk countries, where bears are plentiful, they feast on the carcasses, and lots of other animals follow about in these places. Perhaps Jackson's Hole, Wyoming, is the best place in the world today to hunt either elk or bear, and on my guiding trips I even today can guarantee elk and bear in season, and have taken out many fine heads and large bear skins as trophies.



In a Tight Place.

HUNTING AND TRAPPING THE BEAR

Go to that part of the wood that is frequented by bears and cut some logs about six feet long. Lay three of them down parallel, occupying a space of about six feet wide from outside to outside. Then lay other logs across these close together, as you would lay a corduroy-road, and pin them down to the sleepers thoroughly. They lay up four sides, cob-house fashion, two feet high, thoroughly pinned together, with a door cut in one side, two and a half feet wide. This is the bottom half of the trap. Now build a similar box, that, when turned upside down, will slide into the bottom one, so that the space will not be above eight or ten inches when they are dropped together. Now cut a log of wood, say twelve inches through and twenty feet long, and pin the top box directly across the end of this. Support the beam across a log in such a way that the box can be moved up and down, so as to open or rise out of the bottom and make a space of three feet. Set this with a standard and spindle baited with a chunk of some kind of fresh meat, daubed with honey, honey and oil of anise being at the same time well smeared over the inside of the trap. The heft of the top house and beam, when sprung, should be enough to crush any bear that might chance that way. Another good way to catch a bear when he has been committing depredations on a hog or other farm animals is to set a big steel trap in a spring hole or swampy place, putting a natural looking bit of moss on the pan for him to step on, and hanging a bait of the dead animal where he can only get it by going over the trap.

It is a good way to hunt the bear with a dog that understands him, and will only nip him in the hams. This will soon cause him to tree, and he is a pretty good climber for so large an animal. He climbs almost exactly as a man does, but if you are careless about going up to the tree to shoot him, he will come down not exactly like a man. He puts his arms around the tree, and lets go and comes down with a big scrape or slip, striking the ground with hit butt sufficient to make him bound three feet high. But he is ready to be off, and you have lost your shot. So be careful and go up slyly and shoot him out.

THE SENSE OF DIRECTION

There has been many volumes written on this subject, and it seems to me that the more that has been written the more perplexing has the subject become; hence the reader will surely not deny me the right to add my little "mite" to the seemingly inexhaustible fund on these subjects, too. The time will soon come when my manuscript and I part company, and my few words pass out to a world which gives credit to those who merited and consigns to oblivion those who don't. I feel that my encouragement will be in proportion, at least, to my achievements. Difficulties surmounted gives strength—hardships they toughen, but it is intelligence that uplifts. And it is these traits that I claim for the bird and animal I dedicate these pages to. And if I can make my words prove to the world that the "dumb creatures" we call them have intelligences and perceptions akin to mine I shall at least have gained the object uppermost in my life, and be content, for I will by it have given back to them much that I have robbed them of, and in a way made amends for a life that was forced upon me, more by necessity than choice. To this end I shall now endeavor in as few words as possible, try to explain that so-called mysterious sense of direction which governs the laws of flight and migration of bird and insect life.

Elsewhere in this volume I have tried to point out the general habits, intelligences and perceptions of the creatures who dwell and exist with us in a wild state; those we prey upon, whether rightfully or not. This I shall leave the reader to judge of later.

Primitive man in days gone by worshiped certain animals—others birds—still more the Sun, or the Stars; the reason why has been attributed to ignorance and superstition; these were the Gods which they esteemed the most, and one of the reasons they worshiped them thus was because of their wonderful doings, and the mysteries concerning them, some of which I will try to explain now.

Elsewhere in this book I have told our readers of the property rights of animals and birds who regard from

generation to generation among them, claim to certain regions and districts as their home, and that they strive to maintain these property or district rights, and only yield to man's usurpation of them, or give up to the stronger. Assuming this is the case, it is but fair to concede to them the intelligence necessary to familiarize them with their surroundings, be it where it may, the creature, bird or animal.

Now if this fact is conceded it is obvious that their intelligence and perceptive faculties are sufficient to observe that when the sun rises it is warm and light, "AND THAT THIS WARMTH AND LIGHT ALWAYS COMES FROM A SIMILAR DIRECTION AND TIME" and thus gradually do they acquire the sense of direction, as far as the rising sun is concerned, and like primitive, or, as the scriptures quote, "it serveth them well."

This is perhaps their first lesson in the sense of direction; admitting this is true, we cannot deny that they are equally observant THAT THE SUN SETS IN THE OPPOSITE DIRECTION, and with it comes darkness and quietude. This constitutes their second lesson, as we shall later see.

That they recognize these things is to be admitted, for do they not by the Law of Nature govern their movements by them, just as we do? Thus observation familiarizes them with what IS KNOWN TO US AS EAST AND WEST, and becomes indelibly impressed upon memory.

If we admit this, is it not fair and reasonable to assume that they soon recognize and distinguish between temperable and seasonable changes, as, for instance, the direction from which comes the COLD NORTHERN WINDS, OR THE WARM SOUTHERN BREEZES, and granting this as so, does not thus the FOUR CARDINAL POINTS OF THE COMPASS BECOME RECOGNIZED BY ANIMAL AND BIRD LIFE, as it was and is by primitive, savage and civilized man even unto today.

Surely we cannot deny this. They have eyes, ears, scent and feeling, corresponding senses numerically, mind you, and now, reader, bear with me, be patient, for it is an animal virtue that has made them wise in their ways, and similar

exercise has served even the best of us, and well, when following or studying new things.

Assuming, then, that a bird or animal in time familiarizes itself with such things, we cannot help but admit but that they are enabled to verify direction, other than this, just as we do by the Sun. In other words, supposing the wind blew from the northeast, or the southwest, would not the position of the Sun show them which was true north or south; thus does the Sun verify these opposite directions in the same way as I have explained, that scent verifies sight.

Granting these few points, it is but another step in the sense of directions now, and from here on the reader should not pass over my lines too lightly; better be it if he read between them, for I doubt not but what by this time you have anticipated what is yet to come.

In the migrations of birds and animals both we note they travel mostly north and south, and we must admit that temperature and winds, or the sense of feeling, plays an important part in enabling them to judge and verify these directions to a large extent, and that this sense is increased and verified again by sight, or by KNOWLEDGE AND OBSERVATION OF THE RISING AND SETTING SUN (our east and west), and that this knowledge and observation is memorized or increased as their age, habit, experience and intelligence grows, even as you and I profit and learn thereby.

For as intelligence varies in man, and increases with age, habit and experience, so does it with bird and animal life, who learn and profit by the experience and emulation of others' achievements, and avoiding their failures, just as we do. Theirs is not a life of personal or individual experiment, but of habit, by which each specie acquires the perceptive faculties and trace of others of their kin or tribe who have gone before them, and left them that heritage since the sun shone and the wind blew.

As proof of this and other intelligences which I attribute rightfully to birds and animals who migrate, we notice that when these migrations take place that both flocks and herds are led by older, experienced ones of their kind, whom it is but fair to assume have covered the route be-

fore, being led by their ancestors; thus, mark ye, are these leaders doubly sure.

It is not for me to repeat what I have written before as to the sense of direction so observant in animal migration, or to point out any similarities, for I attribute to animal life the same characteristics which govern their migrations to a proportionate degree.

They learn the higher altitudes and come down to the lower with seasonable similarity, just as they do the reverse, conditions and circumstances always governing; by the same token do they travel north and south, or east and west, as the case may be.

They have their language and signs, expression, scent, sight, hearing and feeling, and can distinguish between sunrise, sunset, cold and warm winds, changes of temperature and land-marks as we know. They can foretell the time of day in a way (whether early or late), anticipate changes in the weather, compute distances of travel, recognize places, select leaders, form for protection against attack, post sentinels or scouts, guides, use signals, signs, undertake distant long journeys or short ones, live in locations, communities, recognize by scent their kin, neighbors, tribes, distinguish enemies from friends, strangers from acquaintances, recognize property and territory rights, smell water from long distances, recognize by scent what the eye cannot see, distinguish and find medical plants from the poisonous ones, educate, foster, rear and instruct their young, perceive the various differences between trees, birds, plants, insects, reptiles, punish enemies, defend the weak, combine for the chase, indulge in love, war, feats of strength, skill or speed, act in concert with each other, or go it alone; think, reason, plan, remember, lure, deceive, coax, intimidate, imitate, threaten or appeal. They can see better in their own element than we can, smell better, hear better, feel better, and make themselves better understood than we can comprehend; have a code of honor in certain lines, equivalent to our own in some ways, and which is perhaps none the less effective.

They have their outcasts, robbers, murderers, bands, workers, slaves, kings, queens, republics, autocrats and perhaps democrats, fools and wise ones, strong and weak, deficient and progressive, can do things we cannot, and can

learn from us as we do from them; they understand us in a way in many cases better than we can them, despite the fact that we call them dumb, ignorant, foolish brutes, simply because they can't speak or understand our language, or do things as well as we do. Yet dumb as they appear to be, they meet us half-way in very many instances, and in their own way or elements show a capacity for getting along, and avoiding us in spite of all our efforts to subdue master or exterminate, contesting us in every step we take on these lines, even disputing our rights of imposition on their territory to the bitter end, reserving memory, endurance and rapidity of flight, enabling it to easily cover what means to us immense distances in a short period of time, owing to straight aerial flight, and the patience and persistence peculiar to its kind, which, if continued, as it is often the case, for weeks to a time, is almost certain to produce results.

If we take a pencil and paper and figure out carefully what these enormous distances which it can cover in a week's time really means we can easily see how the observation or finding of one's single familiar land-mark, birds-eye view, known spot or location familiar to it, its object of search is verified, and if correct its work is accomplished, but it can then easily return to its proper home, haunts and kin.

On the other hand, if continued search in spite of patience, persistence and determined effort it still fails, then it is indeed lost in all the name implies, and must either succumb to its enemies or adapt itself to new conditions, and start life again, practically anew. The one thing that rarely happens, I assure you, unless the hand or cunning of man interferes.

In this connection I desire the readers to understand that it is not my claim that neither birds nor animals get lost, for the facts are they do, even if seldom.

So far, I believe, I have in a way convinced the reader the intelligence of migratory animals and birds, suffice to enable them to distinguish between night from day, sunrise from sunset, cold winds from warm, and, if so, has it not learned what is known to us as n., s., e. and w. or the four cardinal points of our compass, used in our navigation? If

so, it is but a step further to another thing of equal importance, which, while we may have overlooked, we cannot deny—i. e., that the perception of time and distance is possible.

It has been observed that during the periods that cover migrations in seasonable flights that birds and animals invariably travel by periodical stages, arriving and departing with certain regularity—choosing moonlight nights, clear or favorable winds or weather, and alternating their flights by day or night travel, or both; and that they can judge when conditions are favorable we have every proof, because if so they make long journeys and if not short ones, or none at all. Almost any sportsman will verify this. Accordingly do they govern their flights, and even time their efforts to reach certain places. They also time their periods of flight, distance, feeding and resting, gather for the starts, gauge the length and distance of their flights and stops; all perfectly timed to meet conditions, traveling long and continuously to reach certain favorable conditions and avoiding the unfavorable or dangerous ones—even to departing from the true course of flight whenever necessary to reach certain spots favorable to feeding and resting, as we know—starting later from them, and wheeling into the true course again with rare skill and intelligence both. Granting this, we see that they are capable of judging time, place and distance, or rotation, and even of renewing the true course of direction again. What could be greater proof of the powers of observation, intelligence and reasoning power than this?

Now then, how many are there who read these pages have noticed these periodical flights, and that they at times assume different lines or formations, which are sometimes attributed to the letters “a,” “v,” “s,” etc., etc?

Take, for instance, ducks and geese, and then we notice these formations particularly; all of which are governed to circumstances and conditions, and the regions they traverse; older birds leading, and stronger birds to windwards always. Thus the young are not only protected by the elders and guided by them, but from the elements as well, and in a measure safe from attack or scattering when passing through regions where hawks, eagles or hunters abound. Hence, these formations are often in exact ac-

cordance to the protecting lines thrown out, and the number of older birds who take such position, and we must not lose sight of the fact that when so arranged they are also formed for the purpose of keeping together stragglers, for resisting the force of the wind, and other similar objects, and if we observe them closely we find that they even change places when conditions change, such as I have described.

Still more is the fact that during these flights the leaders seem to be governed by the majority, and that the movement and cries we hear in these flocks are indications of their desire or vote to either rest, stop, go on, or keep together—cries of encouraging, warning or complaint, and that when there is no cause of them there is no such cries, simply practically silent, straight flight.

Indeed, from hind end to fore, center to flank, there is guides, sentinels, leaders and rear guards even; not only at this but at times scouts are sent out ahead to find suitable resting and feeding spots, and to await the coming of the flock, or head them off—movements that today and ages have been employed by primitive Man, Savage, Esquimaux and Indian, and even to the military, as we know. Down to the present time, and readers will perhaps see why birds and animals have been worshiped by the savage since the sun shone, and the winds blew. A worship attributed to the intelligences they possessed, or in many things such as this, observed in both bird and animal life, have and do we even yet profit by still.

Finally, I will call attention to the lesser flights which we often see following in the rear of larger ones; these are generally slower, younger or older birds, who retard the larger flocks, and are thus told off or relegated to the rear of the main body, but who nevertheless are under the leadership, guidance and protection of others of its kind, who stay with them, and who travel by shorter and slower stages.

As to the size of these flocks, and their numbers, they depend largely on the location they inhabit, for as they combine with flocks so do they split up in communities when they reach certain distance; each proceeding to its own location and haunts, just as does a military organization when they reach their homes, if I may use such comparative terms.

Thus are the size of flocks governed by region and number which inhabit a given location—many of whom join larger flocks in their flights, while others travel by themselves, the whole depending largely upon circumstances and conditions which govern all things.

That there are even desertions from these flocks in squads, pairs and stragglers, we are equally certain; for, mind you, there are good, bad and indifferent, lazy even among birds and animals; you know.

Thus knowledge and landmarks will aid and point out the way for us—true—but not for our birds, because as yet he has learned them not; ours, too, is a winding way—his shall be straight flight, so we need not fear he will learn our ways or route, for he needs it not, and mark ye, he will accomplish in days what man with all his boasted intelligence has yet failed to—aerial straight flight.

And now for the test of skill, for we have gone as far as we are able. The cold north winds, icy seas and mountains block our progress, and we must haste lest the elements bid us stay, darkness and cold imprison us, for here in these regions have I spent many seasons myself, and know by experience whereof I speak.

Bring hither the bird, see that he is fitted for the journey, lightly fed and given drink, for mark ye, as the Savage or Indian, Animal or Bird travels far, he travels light, and right—that in his journey he can go fast and find his way as he finds his food, drink and rest as he goes along, for on such a journey he needs but little, especially when the way is strange to him and his mental powers are taxed as is his strength.

Now let us wish him God's speed; it is a long, weary, distant flight, and our hearts beat lest he fail, for kindness is there, and the act seems cruel like. He, too, flutters and trembles in our hands, for he knows not our intentions, yet he fears not, and is anxious for liberty.

Cast him loose, and he is gone; a tremulous flight, true, but he hastens; now watch him and see his flight grows more steady; but he is headed wrong, straight up in the face of the cold north wind he flies, on and upward still. Why is this? Our group of eyes, hands and voices all point and clamor in confusion, but see, now he

turns and circles wider still. Watch him closely; true, he acts strangely, but we must be patient, for all is strange and new to him, yet fear not, he has traveled long before, and in his flights has seen mountain heights and snow, and felt the temperature of cold north winds before.

See how he circles; wider and higher still they grow—proof he is confused, perplexed by the strange, unfamiliar sights which appear in turn before his telescopic eye; how far or what he sees or feels we only can guess, **BUT THE SAME RISING SUN IS THERE BEFORE HIM, AND THE SAME COLD NORTH WIND BLOWS**, as shown and was felt in his distant home. 'Tis but a few minutes since we cast him loose, yet to us it seems like hours. Now observe, for he bears away, not true south, but yonder distant mountains which bars the way whence we came and caused us to turn aside stands in his way.

Fainter grows the dim spot—in the distance it fades away and is lost to our sight—gone.

Will it succeed? Only one is there who knows, Him, whom we have been taught sees, watches and knows all things.

Now we will turn aside and take up the subject again, as to the sense of direction in other ways, and seek to explain the mystery further in the interval which must pass, for our bird to find its home.

I have, prior to this, pointed out how certain birds and animals obtain the first senses of direction by means of the rising and setting sun, and how they feel, for they are guided not only by sense of direction, as explained, but by experience, observation and landmarks, on which both savage and civilized man even depends. Nor is this leadership limited to any few, for as our observation of such things prove, old and young, experienced and inexperienced to an almost equal number participate in these flights together, traveling by night, day or both, feeding, resting by moonlight or sunlight, alternately traveling by stages, and governing their movements with intelligence akin almost to our own displaying a knowledge of conditions, and taking advantages of wind and weather and routes such as is favorable, and avoiding the unfavorable ones for times, as does the veteran navigator, who has learned from experience,

just as did they, the art of anticipating storms, seasonable or temperature changes, as we are all aware; following, as has been observed, year after year, such routes contrary to the line of straight flight as may be necessary to reach resting or feeding grounds, reforming, passing, wheeling into line again with marvelous accuracy, and taking the proper directive course with almost human intelligence; passing and re-visiting these same resting places, year after year, unto generations thereof.

So much for migratory flights, dear reader, and as I perceive you would challenge my observations as to individual homing instincts or impulses I will endeavor to explain even this considered impenetrable mystery, and if I have failed to convince you in a way as to some of the secrets of migration I tremble lest I fail here, too, yet in neither would I weary of.

Let us take our homing bird, provided it is but in the prime of life, and has learned already of the rising and setting sun, daylight and darkness, for if so, surely has it recognized in this time the northern chilly winds and the warm southern breezes which are alike the world over. It should be a fine, strong bird, which has been free before, for then it has traveled much about its home and learned many things of time and distant places which it has observed.

True, we understand it not, its signs or language, but that it can tell such things to its own we know, for has it not profited by the experience of others of its kind before, and even now?

That the test be unfair, we will even blindfold it if need be, but it is wrong—we should seek not to confuse or deceive, for this is neither love nor war, and in a test of skill all things should be equal.

From the bird's home we will start and wind our way to the polar shores, as far as man hath reached in a thousand years, if you will; better still be it if we take along a companion, for the distance is long and lonesome and the task a difficult one, and by habit birds of this kind are social and helpful to each other. Again, two heads are better than one, and in this all birds and animals agree at times even. * * * YOU OBJECT; THEN VERY

WELL—ONLY ONE SHALL MAKE THE JOURNEY.

We will pass over the tribulations of our journey in the direction from which the cool north winds blow, and the time it takes to go that distance our compass and the sun shall serve to verify the way, made easier to us because man hath gone and traveled the way before. Observe and distinguish temperature and wind, and by these means do they become familiar with what is known to us as the indications of direction, north, south, east and west.

Now we will go a step further; experience in life also teaches them to anticipate the seasons, distinguish summer from winter, warmth from cold, and we have observed, too, that as the seasons appeared they migrated accordingly, being influenced by the susceptible change in atmospheric conditions. temperature again. Now, is not these things THE STANDARD OF ALL OUR OBSERVATIONS?

Can we now, in the face of these facts, deny that bird and animal life is thus enabled to travel directly away from winter, towards summer, so to speak? If so, we must admit that the birds can travel south, and at the same time be guided with the sun as by day and night, and to judge distance, for we know that they gauge their flights and time their rests accordingly. We know, too, that altitudinal distances or differences are observable, and governed by their field of vision and flight. That their speed is rapid, and their flight is straight, and that they govern themselves according to the conditions of both wind and weather, as we know.

We must also stop to consider that, as a rule, their flight is straight, and that they can often cover six hundred to a thousand miles' straight flight per day, and we must also bear in mind that if the wind conditions are favorable that they take advantage of these things, just as does the seaman or navigator, Savage or Indian, and that at these times they do hardly stop for food or rest, but continue on so long as they are able to so travel.

Now, with all these facts in mind it is not difficult to see how a bird can by these means travel immense distances in a short time, sufficient to enable it to reach within any certain sphere or temperature which by observation it could liken about to its own. Thus, when our bird was turned loose at first it circled long and wide in the air, to get its

true bearings, and to ascertain or better realize where it was, and to gradually gather its mental and physical composure, so as to form a correct idea as to the route it should follow. Gradually it became able to perceive that the wind was in the north, and that the morning sun, then rising, showed it the true east, while the snow-covered mountains brought to its mind the fact that it was in the regions of winter, and that it should go south—the direction of which was evidence evinced by the temperature and wind, and the approximate time of day was shown by the height of the sun; and there is no reason that can be advanced why animals cannot distinguish these certain peculiar but regular indications of directions, or the time of day; not by the hour or clock time, like we, of course, but as does the Savage or Indian—by sight alone. Thus if they are accredited with such knowledge, conditions of temperature, direction and master of straight flight, it is not hard to see how they are enabled to in the first place take their true course of flight and head for home.

Finally, by knowledge of this general direction, as explained, when it has reached a certain altitude it searches far and wide for signs, places or land-marks familiar to its memory, sight or scent; not at random here and there, as one would think, but with careful and deliberate intention in alternate directions, rarely going over the same ground or flight the same time twice.

SENSE OF DIRECTION IN ANIMAL LIFE

In a way, I have tried my best to explain to the reader that much of the mysteries of Animal Life is due to the fact that inherited impulse and memory plays a very important part in governing all their movements, and I also claim that inherited memory is largely responsible for this so-called "Sense of Direction" which guides them in their migrations, or finding their way, both, and that its accomplishment is due largely to inherited memory, which prompts the observation of the directive points shown by sun and light and the sense of feeling, as explained.

I feel equally positive that even at night, in their flights, they are guided by the general directive points indicated by evening twilight and morning dawn. (It is well known that dark, cloudy nights do confuse them.) But that re-occurrence of light indications corrects their flight we are equally certain; shows proof of my claim that by inheritance do they possess or perceive knowledge of the particular directive points of the sun and light, and that this hereditary memory is largely responsible for their knowledge of correct direction in the first place, and, secondly, that retentive memory further aids them to seek their correct sphere or home by general knowledge of perceptions of the differences which characterize one locality from another, or one country from another.

To us the world is large; but to them, birds especially, it is not so large after all. Their rapidity of flight and ability to travel is as marvelous as are their powers of discernment, patience and will-power, equally so; hence, guided and influenced, as they are, by all these and other things, they find their way to places and perform seemingly marvelous feats, because for thousands of years habit has trained them to perform for themselves such accomplishments, and makes possible to them, unconsciously, what seems consciously impossible to us.

Take, for instance, savages, old woodsmen, hunters, trappers, etc., more especially those who have descended from similar families, they acquire, or inherit similar traits or powers; then sense of direction becomes a sort of inherited, natural trait, largely assisted by general knowledge or observation of the sun and light directive points, directive winds, as well as by knowledge of **the lay of the land**. Its formation, flora, mountains and rivers, and so on ad infinitum.

And this memory, experience, habit, patience and discriminate observation serves as a natural aid to determine the same directive points which guide animals and birds during their passages, flights or migrations. Thus the homing-instinct of the passenger pigeon or bird who has the ability to fly two hundred miles for a breakfast worm stands a mighty good chance of finding its way home or back—a matter of a few thousand miles, if necessary, in a way equally as well; losing and finding its way perhaps

in turn, but guided nevertheless by the same principles which guide us in our travels—that of observation.

Again, it is absolutely certain that by a chance glance it could tell the peculiar characteristics of its **own country** from any foreign or **different one** by its formation or trend.

Supposing, for instance, its own habitat from whence it first started was mountainous. It would avoid low lands and seek only **the mountainous**, or vice versa. Again, we must admit in its search it could be guided also by the aforementioned form as well as the lay of the land, whether it was an island or a continent—whether it was parallel to the sun or diagonal to it, so too would its flora or plant life, or vegetation, or its inhabitants enable it to identify its own from other lands—even its lakes, rivers or coast formations, or contours would serve its powers of recognition or discernment of difference; not only this, its meeting of its own species, or for that matter other birds, would enable it to perform some accurate idea of its location and **true route** (even if we do exclude the possibility of it being able to communicate its wants, and ideas, on the basis of my **sign language theory**).

Why should we not allow to them the ability to make their wants known to others of their species? Are there not indisputable facts that they can do it, even if only in a limited way? We see every evidence that they in a hundred ways follow the promptings of each other, and combine their acts to each others' mutual advantage. Witness the parents instructing their young; their combinations for offense, defense, hunting and a hundred other things, all of which go a long way to establish the truth of my theory.

Notwithstanding man's ceaseless pursuit, superiority of intelligences and numbers, giving and taking, and holding theirs against all odds, thriving and adapting themselves to conditions and circumstances, with a degree of intelligent perception that is nothing short of the marvelous; gaining knowledge of our ways, profiting by them, and keeping their ways from us more than we do ours from them.

Can we deny then, after this evidence to the contrary, that they have not intelligences in common with our own? Are we not on the wrong track? Do we not err when we

deny that they possess intelligences, because it is not intelligence of the human kind?

Neither must we judge by the standard of domestic animals that we have grouped around us, for these have by contact with man in a way degenerated, and are imbeciles almost, more or less automatic, from whom we have almost eliminated with but few exceptions every spark of conscious intelligence, alive and sort of self-directing; true, but absolutely broken in spirit, meaning and intent.

We have deprived them of every right to free them, thoughts, purpose and action, and enslaved them to our cause and ways. We deny them the right of natural selection, pen them up, feed, harness, work and control their every action, unless it coincides with our own ideas.

In many instances we deny them the right of liberty, freedom, companionship of kith or kin, and adapt them to our ways, until they become practically a clod, block-machine like creature, alike to nothing found of the wild animal world from which it sprung. Its mental faculties become sort of obsolete, and it can neither think, act, reflect, compare or weigh any more than a machine, and there is no stimulus even, outside of what we apply. For generations we have crossed or inbred its kind, until its every intelligence is blunted, and its reasoning powers practically dethroned; hence, to form any standard of the intelligence of Wild Animals from those domestic species that we have among us is but a reflection on ourselves, whether it be a breeding bull or a barnyard fowl.

THE LANGUAGE OF ANIMALS OR THE SECRET OF SIGN

In brief the language of animals is one of **sign movement, expression** (physiognomy if you will), every **action or posture** of the body, every emotion, each **change of muscle or facial look**. The mere facial wrinkling or furrows (consciously or unconsciously, instinctively performed) give external signs which are as good as words. Pleasure, fear, sneers, contempt, disgust, want, hatred, jealousy, affection,

astonishment, shame, pain, dislike, defiance, low spirit, depression, anger, amusement, like, surprise, etc.; in short, any and every emotion or want, has its peculiar characteristic and appearance. Hence by **infallible signs** do they perceive, anticipate or read what is going on in the mind of each other, much as do we perceive at a **moving picture show**, and read by sign its meaning and intent there betrayed by look, act, appearance, gesture or action.

Watch two animals at play or in fight—see them comprehend and anticipate every movement of each other. Even each call, cry or sound has its peculiar or significant meaning, and by the expression of this sound or call even its meaning or intent is recognized exactly as is every movement equally interpreted or read, which is the true language of animals.

Even students in physiology recognize the fact that all emotions—wants, desires, likes, dislikes or habits—betray themselves in movements of the facial or body muscles. Grief, anxiety, impatience, contempt, joy, all have their exterior signs, and instances such as I shall cite ought to convince the reader of the truth of my observations, a few of which I shall describe in this chapter.

Observe dogs, who, during many generations have, whilst intently looking at any object, pricked their ears in order to perceive any sound; and conversely have looked intently in the direction of a sound to which they may have listened, the movements of these organs have become firmly associated together through long-continued habit.

Notice the difference between rage and fear. Who can mistake it. Then observe joy or pleasure, versus, sorrow or grief; in either case both the facial expression and body posture or movement betrays the sign in unmistakable form, even in the human race, as per these examples:

Astonishment expressed by the eyes and mouth being opened wide, and by the eyebrows being raised.

Shame excites a blush when the color of the skin allows it to be visible, and especially how low down the body does the blush extend.

When a man is indignant or defiant he frowns, holds his

body and head erect, squares his shoulders and clenches his fists.

When considering deeply on any subject, or trying to understand any puzzle, does he frown, or wrinkle the skin beneath the lower eyelids?

When in low spirits, are the corners of the mouth depressed, and the inner corner of the eyebrows raised by that muscle which the French call the "grief muscle"? The eyebrow in this state becomes slightly oblique, with a little swelling at the inner end; and the forehead is transversely wrinkled in the middle part, but not across the whole breadth, as when the eyebrows are raised in surprise.

When in good spirits do the eyes sparkle, with the skin a little wrinkled round and under them, and with the mouth a little drawn back at the corners?

When a man sneers or snarls at another, is the corner of the upper lip over the canine or eye tooth raised on the side facing the man who he addresses?

A dogged or obstinate expression is recognized chiefly when shown by the mouth being firmly closed, a lowering brow and a slight frown.

Contempt expressed by a slight protrusion of the lips and by turning up the nose, and with a slight expiration.

Disgust shown by the lower lip being turned down, the upper lip slightly raised, with a sudden expiration, something like incipient vomiting, or like something spit out of the mouth.

Extreme fear expressed in the same general manner as with humans.

Laughter carried to such an extreme as to bring tears into the eyes.

When a man wishes to show that he cannot prevent something being done, or cannot himself do something, does he shrug his shoulders, turn inwards his elbows, extend outwards his hands and open the palms, with the eyebrows raised?

Children, when sulky, pout or greatly protrude the lips.

Do not the frown or wrinkling of the brows in ourselves indicate when we are vexed or perplexed? Is not the serious or frivolous recognized at a glance? Hence, multiply

these exterior signs and movements of the body—a hundred times—and you have, in short, the **secret of animal language**. Indeed, the sign language of the savage tribes of the world, with whom I have spent many years of my life, both in equatorial or polar zones, all recognize and **communicate with each other by sign**, in such a way that not a single word need be spoken—the eye alone, by external sign, recognizing all the various differences of expression of face or muscle movement or posture of the body.

Hence all animals perceive and read these signs instantly, because thousands of years has taught them that they are **infallible**. Take, for instance, movements or changes in any part of the body—as the wagging of a dog's tail, the drawing back of a horse's ears, the shrugging of a man's shoulders, may all equally well serve for expression, and is indeed a language of sign—where **lies are impossible**—proof of the saying "Actions speak louder than words."

When our minds are much affected, so are the movements of our bodies; but here another principle besides habit, namely, undirected overflow of nerve-force, partially comes into play. We have lost the art of mind reading, but wild animals have retained it. It is so important for our purpose fully to recognize that actions readily become associated with other actions and with various states of the mind, that I will give a good many instances, in the first place relating to man, and afterwards to the lower animals, as we shall observe.

Notice, a vulgar man often scratches his head when perplexed in mind; he acts thus from habit, as if he experienced a slightly uncomfortable bodily sensation, namely, the itching of his head, to which he is particularly liable, and which he thus relieves. Another man rubs his eyes when perplexed, or gives a little cough when embarrassed, acting in either case as if he felt a slightly uncomfortable sensation in his eyes or windpipe.

Again, persons cutting anything with a pair of scissors may be seen to move their jaws simultaneously with the blades of the scissors. Children learning to write often twist about their tongues as their fingers move, in a ridiculous fashion. When a public singer suddenly becomes a little

hoarse, many of those present may be heard to clear their throats; but here habit probably comes into play, as we clear our own throats under similar circumstances. I have also been told that at leaping matches, as the performer makes his spring, many of the spectators, generally men and boys, move their feet.

Dogs scratch themselves by a rapid movement of one of their hind-feet, and when their backs are rubbed with a stick, so strong is the habit that they cannot help rapidly scratching the air or the ground in a useless and ludicrous manner. The terrier just alluded to, when thus scratched with a stick, will sometimes show her delight by another habitual movement, namely, by licking the air as if it were my hand.

Horses scratch themselves by nibbling those parts of their bodies which they can reach with their teeth; but more commonly one horse shows another where he wants to be scratched, and they then nibble each other.

A horse when eager to start on a journey makes the nearest approach which he can to the habitual movement of progression by pawing the ground. Now, when horses in their stalls are about to be fed and are eager for their corn, they paw the pavement or the straw. Two of my horses thus behave when they see or hear the corn given to their neighbors. But here we have what may almost be called a true expression, as pawing the ground is universally recognized as a sign of eagerness.

Cats cover up their excrements of both kinds with earth; and my grandfather saw a kitten scraping ashes over a spoonful of pure water spilt on the hearth; so that here an habitual or instinctive action was falsely excited, not by a previous act or by odor, but by eye-sight. It is well known that cats dislike wetting their feet, owing, it is probable, to their having originally inhabited the dry country of Egypt; and when they wet their feet they shake them violently. My daughter poured some water into a glass close to the head of a kitten, and it immediately shook its feet in the usual manner; so that here we have an habitual movement falsely excited by an associated sound instead of by the sense of touch.

ANIMALS GESTURE LANGUAGE

Presently I shall discuss and tell about wild animals, but will first take up those you are most familiar with in order to understand more fully by analogy the facts I desire to impress upon your mind, viz.:

When a dog approaches a strange dog or man in a savage or hostile frame of mind he walks upright and very stiffly; his head is slightly raised, or not much lowered; the tail is held erect and quite rigid; the hairs bristle, especially along the neck and back; the pricked ears are directed forwards, and the eyes have a fixed stare. These actions, as will hereafter be explained, follow from the dog's intention to attack his enemy, and are thus to a large extent intelligible. As he prepares to spring with a savage growl on his enemy, the canine teeth are uncovered, and the ears are pressed close backwards on the head. Let us now suppose that the dog suddenly discovers that the man he is approaching is not a stranger, but his master; and let it be observed how completely and instantaneously his whole bearing is reversed. Instead of walking upright, the body sinks downwards or even crouches, and is thrown into flexuous movements; his tail, instead of being held stiff and upright, is lowered and wagged from side to side; his hair instantly becomes smooth; his ears are depressed and drawn backwards, but not closely to the head, and his lips hang loosely. From the drawing back of the ears the eyelids become elongated, and the eyes no longer appear round and staring. It should be added that the animal is at such times in an excited condition from joy, and nerve-force will be generated in excess, which naturally leads to action of some kind, unconsciously even.

Unconscious Movements—Signs

A winking movement is caused when a blow is directed towards the face, but this is an habitual and not a strictly reflex action, as the stimulus is conveyed through the mind and not by the excitement of a peripheral nerve. The whole

body and head are generally at the same time drawn suddenly backwards. These latter movements, however, can be prevented, if the danger does not appear to the imagination imminent; but our reason telling us that there is no danger does not suffice. I may mention a trifling fact, illustrating this point, and which at the time amused me. I put my face close to the thick glass-plate in the front of a puff-adder in the Zoological Gardens, with the firm determination of not starting back if the snake struck at me; but, as soon as the blow was struck my resolution went for nothing, and I jumped a yard or two backwards with astonishing rapidity. My will and reason were powerless against the imagination of a danger which had never been experienced.

Dogs after voiding their excrement often make with all four feet a few scratches backwards, even on a bare stone pavement, as if for the purpose of covering up their excrement with earth, in nearly the same manner as do cats. Wolves and jackals, in exactly the same manner. All these animals, however, bury superfluous food. Hence, if we rightly understand the meaning of the above cat-like habit, of which there can be little doubt, we have a purposeless remnant of an habitual movement, which was originally followed by some remote progenitor of the dog-genus for a definite purpose, and which has been retained for a prodigious length of time.

Wolves, dogs and jackals take pleasure in rolling and rubbing their necks and backs on carrion, because the odor seems delightful to them.

Many carnivorous animals, as they crawl towards their prey and prepare to rush or spring on it, lower their heads and crouch, partly, as it would appear, to hide themselves, and to get ready for their rush; and this habit in an exaggerated form has become hereditary in our pointers and setters. Now, I have noticed scores of times that when two strange dogs meet on an open road, the one which first sees the other, though at the distance of one or two hundred yards, after the first glance always lowers its head, generally crouches a little, or even lies down; that is, he takes the proper attitude for concealing himself and for making a rush or spring.

PRACTICAL ILLUSTRATIONS OF SIGN LANGUAGE

Let us now turn to the cat. When this animal is threatened by a dog, it arches its back in a surprising manner, erects its hair, opens its mouth and spits. But we are not here concerned with this well known attitude, expressive of terror combined with anger; we are concerned only with ~~that~~ of rage or anger. This is not often seen, but may be observed when two cats are fighting together. The attitude is almost exactly the same as that of a tiger disturbed and growling over its food, which every one must have beheld in menageries. The animal assumes a crouching position, with the body extended; and the whole tail, or the tip alone, is lashed or curled from side to side. The hair is not in the least erect. Thus far, the attitude and movements are nearly the same as when the animal is prepared to spring on its prey, and when, no doubt, it feels savage. But when preparing to fight, there is this difference, that the ears are closely pressed backwards; the mouth partially opened, showing the teeth; the fore feet are occasionally struck out with protruded claws, and the animal occasionally utters a fierce growl. All, or almost all, these actions naturally follow (as hereafter to be explained), from the cat's manner and intention of attacking its enemy.

Let us now look at a cat in a directly opposite frame of mind, whilst feeling affectionate and caressing her master; and mark how opposite is her attitude in every respect. She now stands upright with her back slightly arched, which makes the hair appear rather rough, but it does not bristle; her tail, instead of being extended and lashed from side to side, is held quite stiff and perpendicularly upwards; her ears are erect and pointed; her mouth is closed, and she rubs against her master with a purr instead of a growl. Let it further be observed how widely different is the whole bearing of an affectionate cat from that of a dog, when with his body crouching and flexuous, his tail lowered and wagging, and ears depressed, he caresses his master. This contrast in the attitudes and movements of these two carniv-

orous animals, under the same pleased and affectionate frame of mind, can be explained, as it appears to me, solely by their movements standing in complete antithesis to those which are naturally assumed, when these animals feel savage and are prepared either to fight or to seize their prey.

In these cases of the dog and cat, there is every reason to believe that the gestures both of hostility and affection are innate or inherited, for they are almost identically the same in the different races of the species, and in all the individuals of the same race, both young and old.

THE VALUE OF NOTICING SIGN LANGUAGE

Any one who has watched monkeys will not doubt that they perfectly understand each other's gestures and expression.

An animal when going to attack another, or when afraid of another, often makes itself appear terrible, by erecting its hair, thus increasing the apparent bulk of its body, by showing its teeth, or by brandishing its horns or by uttering fierce sounds.

Dogs when approaching a strange dog, may find it useful to show by their movements that they are friendly, and do not wish to fight. When two young dogs in play are growling and biting each other's faces and legs it is obvious that they mutually understand each other's gestures and manners. There seems, indeed, some degree of instinctive knowledge in puppies and kittens, that they must not use their sharp little teeth or claws too freely in their play, though this sometimes happens and a squeal is the result; otherwise they would often injure each other's eyes.

Years ago I owned a valuable Collie dog who loved to play and bite at my hand, who at times was rather rough with his teeth, hence when in play, often snarling at the same time, if he bit too hard and I said gently, gently, he went on biting, but he answered me by a few wags of the tail, which seemed to say "Never mind, it is all fun." Although dogs do thus express, and may wish to express, to

other dogs and to man, that they are in a friendly state of mind, these very same signs we perceive in mankind—only the trouble is we have largely ignored these things and depended upon speech instead, while with animals it is the reverse.

Now turn to the characteristic symptoms of rage. Under this powerful emotion the action of the heart is much accelerated, or it may be much disturbed. The face reddens, or it becomes purple from the impeded return of the blood, or may turn deadly pale. The respiration is laboured, the chest heaves, and the dilated nostrils quiver. The whole body often trembles. The voice is affected. The teeth are clenched or ground together, and the muscular system is commonly stimulated to violent, almost frantic action.

SIGN VERSUS WILD ANIMAL CALLS

The sexes of many animals incessantly call for each other during the breeding-season; and in not a few cases, the male endeavors thus to charm or excite the female. Thus the use of sign vocal organs will have become associated with the anticipation of the strongest pleasure which animals are capable of feeling. Animals which live in society often call to each other when separated, and evidently feel much joy at meeting; as we see with a horse, on the return of his companion, for whom he has been neighing. The mother calls incessantly for her lost young ones; for instance, a cow for her calf; and the young of many animals call for their mothers. When a flock of sheep is scattered, the ewes bleat incessantly for their lambs, and their mutual pleasure at coming together is manifest. Woe betide the man who meddles with the young of the larger and fiercer quadrupeds, if they hear the cry of distress from their young. Rage leads to the violent exertion of all muscles, including those of the voice; and some animals, when enraged, endeavor to strike terror into their enemies by its power and harshness.

Rival males try to excel and challenge each other by their voices, and this leads to deadly contests. Rabbits stamp loudly on the ground as a signal to their comrades; and if a man knows how to do so properly, he may on a quiet evening hear the rabbits answering him all around. These animals, as well as some others, also stamp on the ground when made angry. Porcupines rattle their quills and vibrate their tails when angered; and one behaved in this manner when a live snake was placed in its compartment. The quills on the tail are very different from those on the body: They are short, hollow, thin like a goose-quill, with their ends transversely truncated, so that they are open; they are supported on long, thin, elastic footstalks. Now, when the tail is rapidly shaken, these hollow quills strike against each other and produce a peculiar continuous sound. We can, I think, understand why porcupines have been provided, through modification of their protective spines, with this special sounding instrument. They are nocturnal animals, and if they scented or heard a prowling beast of prey, it would be a great advantage to them in the dark to give warning to their enemy what they were, and that they were furnished with dangerous spines. They would thus escape being attacked. They are, as I may add, so fully conscious of the power of their weapons, that when enraged they will charge backwards with their spines erected, yet still inclined backwards.

Many birds during their courtship produce diversified sounds by means of specially adapted feathers. Grouse drum with their wings. Snakes and adders puff and hiss and rattle or vibrate the tail.

When a dog is chased, or when in danger of being struck behind, or of anything falling on him, in all these cases he wishes to withdraw as quickly as possible his whole hind-quarters, and that from some sympathy or connection between the muscles, the tail is then drawn closely inwards.

These facts together with other observation as to **gesture language of wild animals** represent but a part of what I have to say upon the subject—and as we go along I intend to show you—how in many other ways—wild animals communicate to each other—when separated by long distances even—

how they leave messages, post signals and by a host of ways perform seemingly wonderful feats in a most simple way.

That mankind once possessed the ability to read and decipher expression without words is recorded in the early part of Genesis, where we are told that our Adamic ancestor was asked, "**What is this thou hast done—hast thou eaten of the tree of life**, etc., etc.," showing that by external signs facial expression and otherwise the evil done was evident by a glance in point of fact. Mind reading or telepathy is repeatedly recorded—even expert criminologists today or men versed in criminal ways can tell by **looks and posture**, largely what is going on in one's mind, for by muscle and facial movement, expression, etc., the guilty self betray themselves; and with wild animals who depend upon signs as a means of communication, the faculty is abnormally developed, and apparent at a glance, and when we can observe the signs, they fathom both act, meaning and intent a thousand times more accurate than we; that is why I contend that animals recognize even our moods, dispositions and by the power of scent also are enabled to perform wonderful feats of an extraordinary nature.

"DEDUCTIVE POWER OF ODORS."

It is by means of scent or odor that animals smell out where each other has been and determine or reason out largely by these and other signs what their absent mates have been doing. Even animals, after their mates return from some lone trip, will proceed to smell out their **fellows**, as though to deduce therefrom, largely by odor or **association of smell**, where they have been and what they were at. So, too, will pups or cubs smell their parent, who has been off hunting, and learn if they have been successful in the chase. As generally the odor of blood or the animal she has captured associated with, perhaps feasted upon or hidden, is perceptible—all such signs are noted. Thus many a **tell-tale story or fact** cannot be hidden, disguised or concealed, and the nose is used to tell many a tale or act:

that in itself is equivalent to language reading and perceiving. By such sign a whole lot of information is gained which otherwise could not be obtained; and by **deductive reasoning** do they learn and know much as to each other's trips or acts when absent, illustrating that old proverb, "**Actions speak louder than words.**" Take, for instance, a good hunting dog; he knows the minute one is preparing for a hunting trip, or not, and reasons out largely by actions just what you are going to do, where you are going, or **where you have been.** Even a common house dog or cat knows when its master or missus has been to the store, and what it has got before; even the packages are opened; they can smell butcher shop or grocery and tell the difference between that and the drugstore or laundry; they become far more familiar with your habits, customs and wants than you do of theirs, and I repeat, we have much to profit by and learn of their ways. Eyes, nose and ears to them give out information that you little dream of, and there is a hundred things they notice about each other or you that one never could imagine or suspect. Hence bear in mind that by a mental and physical process of reasoning **all animals deduce from sign**, and gather much information which conveys to them—and really means—the equivalent of speech. Every track, trail, hoof print, claw mark, rubbing post, urinating place, dung heap, piles of hair, fur, bones, remains of a feast, campfire or strange article, even an empty cartridge shell thrown about or left around, tin can, or, for that matter **anything strange**, conveys to them a tell-tale story as to what has been done, or what is going on. It is their way of gathering facts and information of each other's or your acts, and with "Sherlock Holmes" like intelligence they learn the news as to happenings of the day, much as we rely upon the news of the day or gossip of the neighbors. To them the art of **deductive reasoning** is part and parcel of their make-up, and they read in each other's minds and acts the very thoughts, intents and purposes as they go along. Curiosity in them is inborn, a sort of second nature, and it is developed extraordinarily until it becomes a seventh or eighth sense, so to speak.

I have often been amused by scientists who wrote on subjects as, "**Do Animals Think or Reason?**" and am surprised

that they deny to them intelligence that we possess. To my mind they can give scientists cards and spades when it comes right down to facts, although I am willing to admit their intelligence is limited to natural things, and not the artificial or unnatural. If scientists would only gather their information at first hand, instead of jumping to conclusions, they would concede the fact that **animal intelligences** are superior to their own in very many respects, just as they do that ours are superior to theirs in many ways. There are limitations pro and con, and we have much yet to learn and profit by **as to the ways of the wild.**

TRACKS AND TRAILING

TRACKING ON BARE GROUND

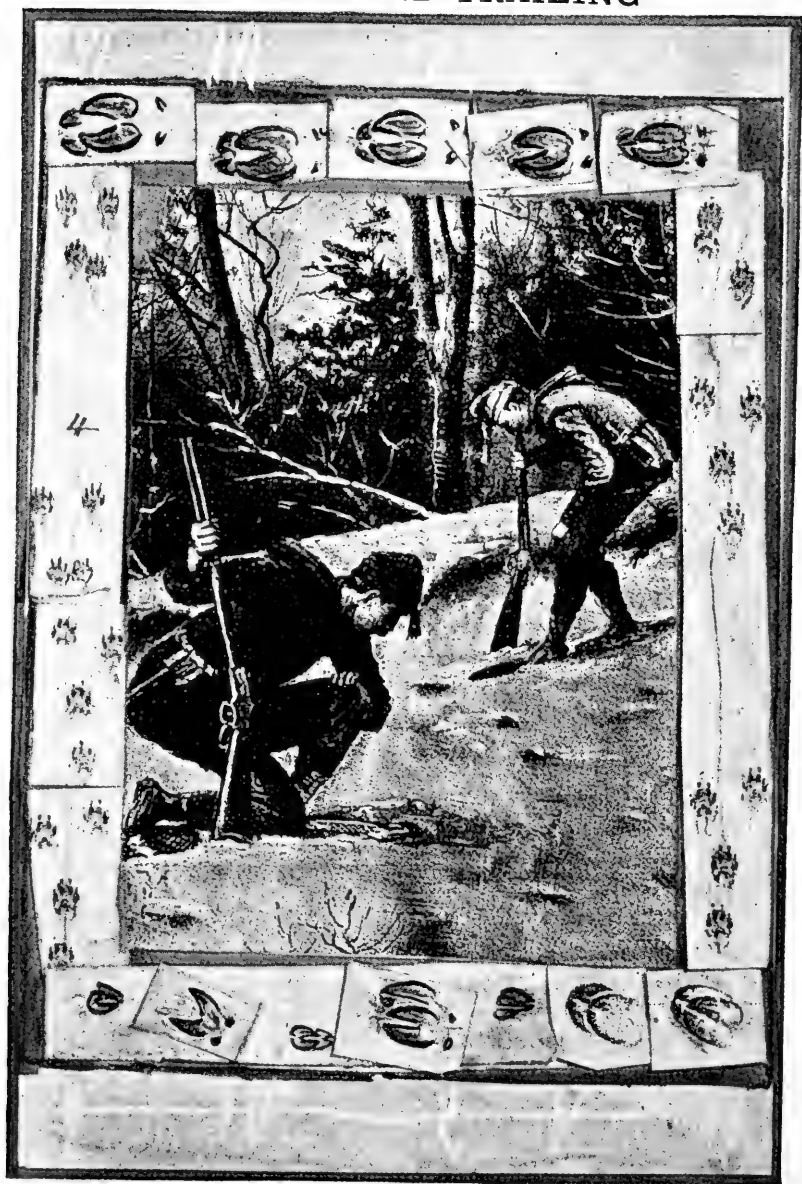
It has been said that nature is an open book to the man who can read the signs and tracks therein, but few is there who can do it. Too many tracking is very difficult, hence, do not expect to become an expert trailer by reading this chapter—either let its hints and suggestions be the starting point, and begin by examining every imprint you find anywhere and by deductive reasoning figure out who made it. Experience only will enable you to judge of these things, for there are lots of **other signs besides trail** to note, for it is by sign and trail both that one verifies the other.

To begin with one must first judge correctly what animal made the track; second, to note the direction it is traveling; third, the manner or gait in which it is going; fourth, its size and shape, so as to judge of its age and sex, for by mental note of these facts one can generally get a pretty good idea of its distinction and anything else accordingly.

Under ordinary conditions any single track will suffice to tell the species and size, at least with a fair degree of accuracy, yet there are many instances when varieties look so much alike that one can mistake.

In tracking deer upon bare ground a difficulty meets us which is practically unknown in tracking upon snow; name-

TRACKS AND TRAILING



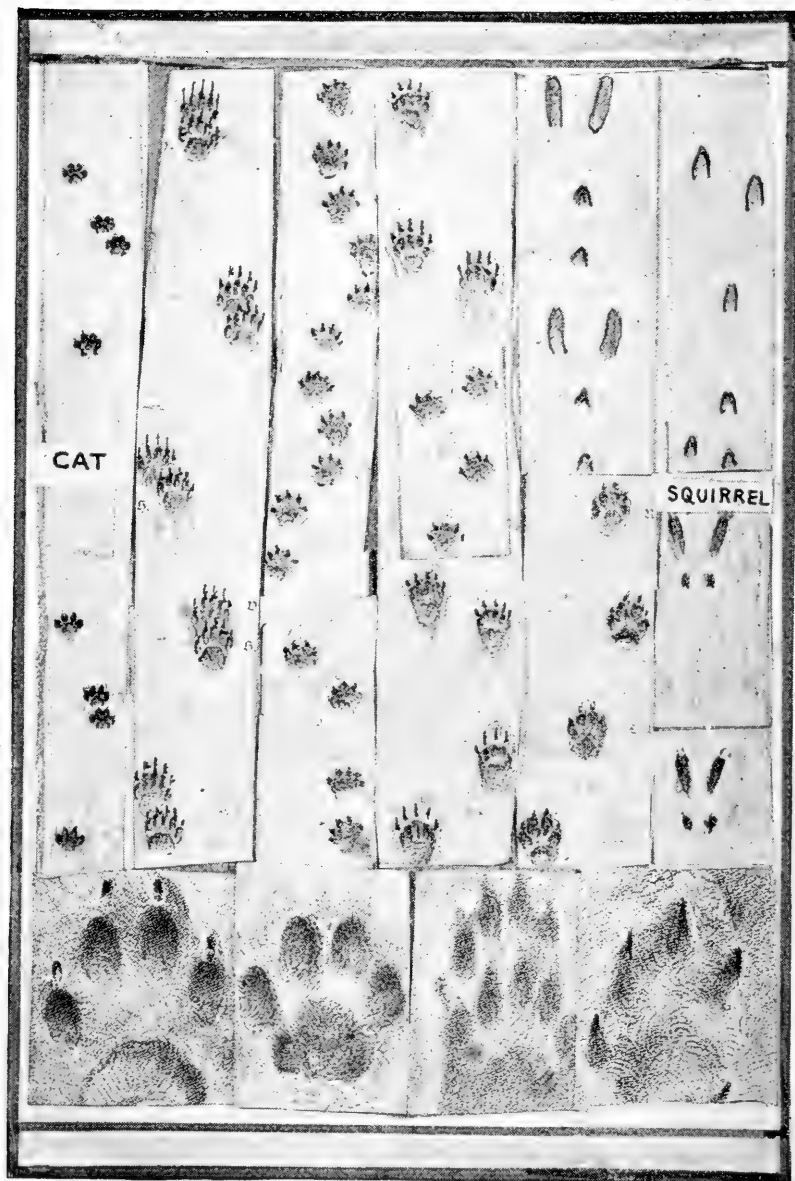
Identifying Sign or Trail.

ly, recognizing the footprints. On snow one can generally watch the trail with an occasional side glance of the most careless kind, keeping all his attention directed toward catching first sight of the game. But on bare ground not only is keener sight necessary to detect the game, but a large part of the attention so necessary for that purpose has to be diverted toward finding and recognizing the footprints of the trail.

I have read some very weak stuff about the stupendous difficulties of tracking upon bare ground. I have read very able articles by eminent sportsmen in our best magazines in which the tracking of a moose weighing nearly a thousand pounds was depicted as a vast and wondrous achievement, the ability to do which was reserved to the gifted Indian and denied to the poor paleface. There are indeed some people who could not track an elephant through a dew-covered clover-patch; but there is not a backwoods boy of sixteen who ever has to hunt up a lost yearling calf in the woods, not a young vaquero in California who ever followed an animal over the rugged hills, who would not laugh at those articles and declare the author a gosling. The authors of such articles are, however, no such thing, but simply careless writers who allow their admiration of the Indian to run away with their pens. But the effect of all such stuff is bad. It deters from attempting tracking many a one who might easily attain, not great skill, but enough for good sport.

There may be a hereditary tendency in the Indian which makes it more easy for him to learn tracking; but he has also vastly more practice. And herein lies the main secret—perfect sight and practice, practice, practice. And with practice the average white man is fully equal to the average Indian. There will be a difference in individuals just as there is in the knack or facility of doing anything, and consequently some Indians will excel some white men. But if the average Indian excels the average white man, it is in what he will do and not in what he can do. He will run all day with nothing to eat, keeping a dog-trot nearly all the time for a single deer. The white man has more regard for the day of reckoning, and will rarely throw away

TRACKS OF ANIMALS—"SPOORING"



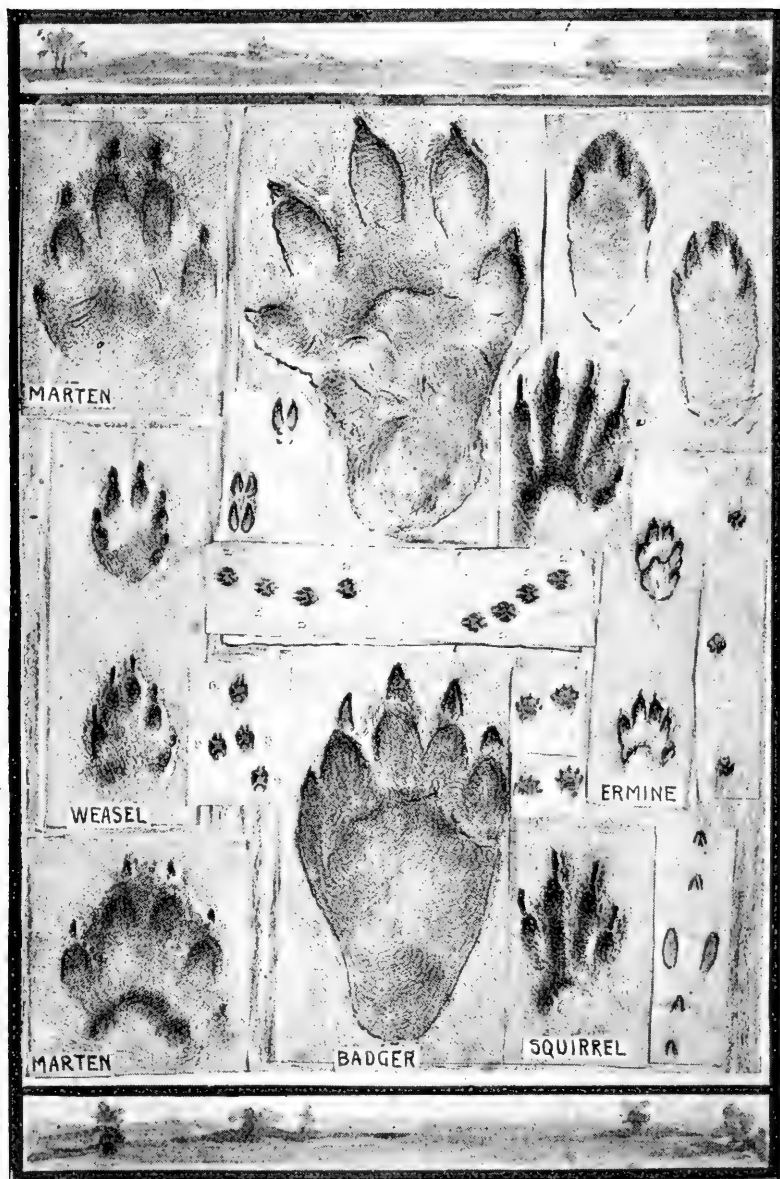
A Study in Gaits and Tracks

his health or prematurely use up his strength for such a paltry reward as a deer. And just so the Indian will cling to a trail and eventually secure the game when the white man would give it up as involving more patience or work than the game was worth. The Indian hunts for food; when he sets out for it he is bound to have it, and he will continue the chase as long as daylight allows him. Here he undoubtedly excels. And, so far as I am concerned, he is triply welcome to all the glory of this superiority.

Tracking on bare ground is, however, very often difficult, and is never any too easy. On some kinds of ground it is impossible for either white man or Indian to track an animal as light and as small-hoofed as a deer fast enough to be of any avail; and often where it can be done it is too tedious even for the Indian. He rarely tracks a single deer on most kinds of bare grounds unless it is wounded or deer are very scarce. Where a single track goes through heavy timber; where the ground is covered with dry dead leaves or dry dead grass; where it is very dry and hard, or is stony or frozen; where it is thickly covered with brush, dry weeds, canebrake, etc.—rare is the hunter, either white or red, who will have patience to follow a track. And often they could not if they would. More often, however, they merely skip such places and depend upon picking up the trail on better ground; but where the whole or greater part of the ground is of the nature above described, nearly all hunters let the tracks alone, unless they be tracks of a traveling band.

But, on the other hand, there are some kinds of ground on which a deer can be followed with almost as much certainty as on snow, and so fast as to require little patience on the part of the hunter. Such are the bare hilly regions where the ground is not too rocky, and where little or no grass grows and the brush is not too thick. Such is almost all open ground when very wet and not too much covered with dead grass, weeds, etc.; such is most open ground covered with green grass, especially if the dew is on it; such is ground on which wild cattle range, and where the deer often follow the cattle-trails and make runways of their own from one trail to another. On these and various other

TRACKS OF ANIMALS



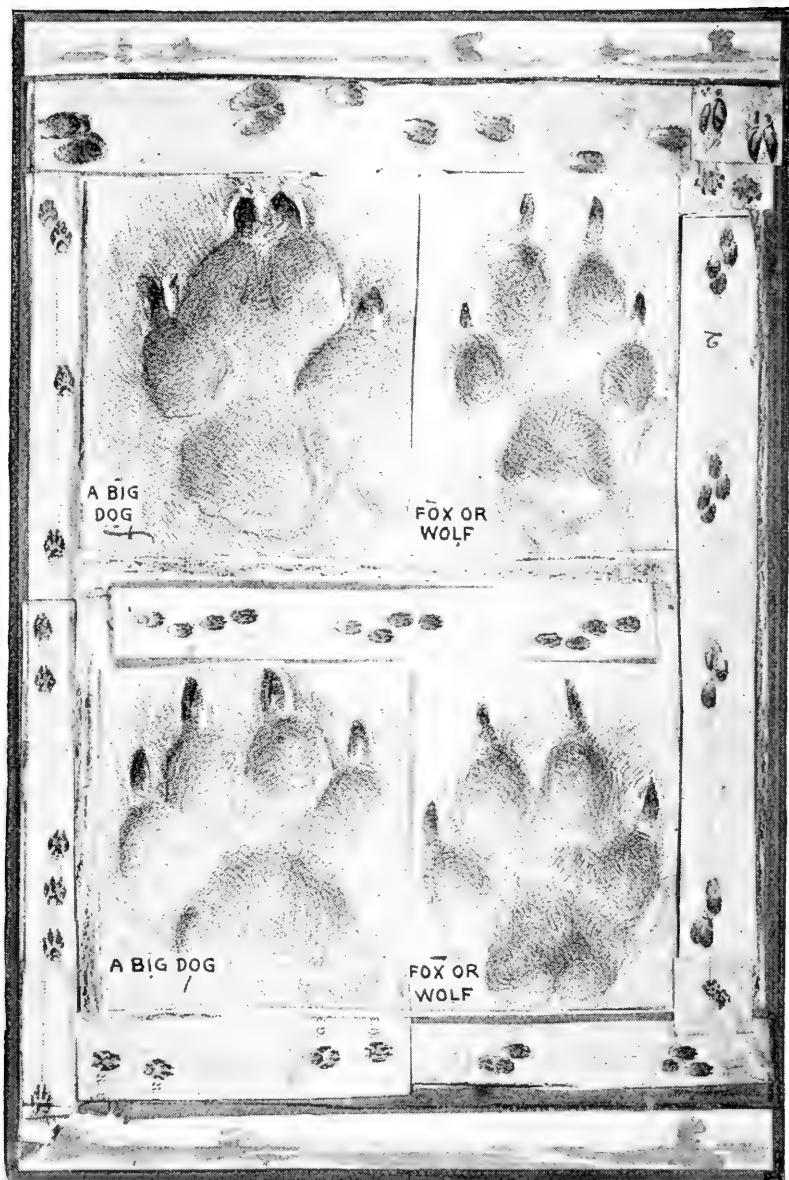
Close Comparisons, showing How Mistakes are Made.

kinds of ground it often is worth while to work up a trail of even a single deer; but just when and where this will be worth while depends so entirely upon the nature of the ground, the size of the deer, the distance it is likely to travel, the age of the track, its direction, the time of day, etc., that it is quite impossible to lay down any useful rule. It is a thing to be decided by the circumstances of each particular case.

But though it may not be worth while to track a single deer on bare ground, the case is often quite different when there are several. A band of five or six deer is quite easy to follow, and even a doe and two fawns will keep so close together that where the track of one is extremely faint that of another near by it is very plain. So long as they keep near together, so that one fills up the dim part of the trail of another, a band is quite easy to track; but when they begin to straggle out and wander here and there they get harder to follow, and, as before, in tracking on snow, it is now best to leave the tracks for a while and look out for the game from behind some ridge. Still it will not always be advisable to follow even a band, if deer are plenty enough without doing so; for though it is easier for you to see some of them, it is also much easier for them to see, or hear, or smell you. So if the ground is very level or brushy, with no good lookout places or facilities for circling well, or if the wind be strong, it is often best not to bother even with tracking several deer if others are plenty enough to give you a fair chance elsewhere.

If you only expect to hunt a little at long intervals it will not be worth while to study tracking on bare ground, for to acquire sufficient skill to do it rapidly enough, and with certainty enough, requires unquestionably a large amount of practice. But, on the other hand, if you intend to do any considerable amount of still-hunting you should by all means practice it. And to begin this it is not necessary to wait until the necessity arises. The first steps in the art can be learned by practicing on your own trail.

To do this go first upon ground that is soft enough to take the impression of your foot. After walking a hundred yards or so, circle around backward and look for your

TRACKS AND TRAILS.

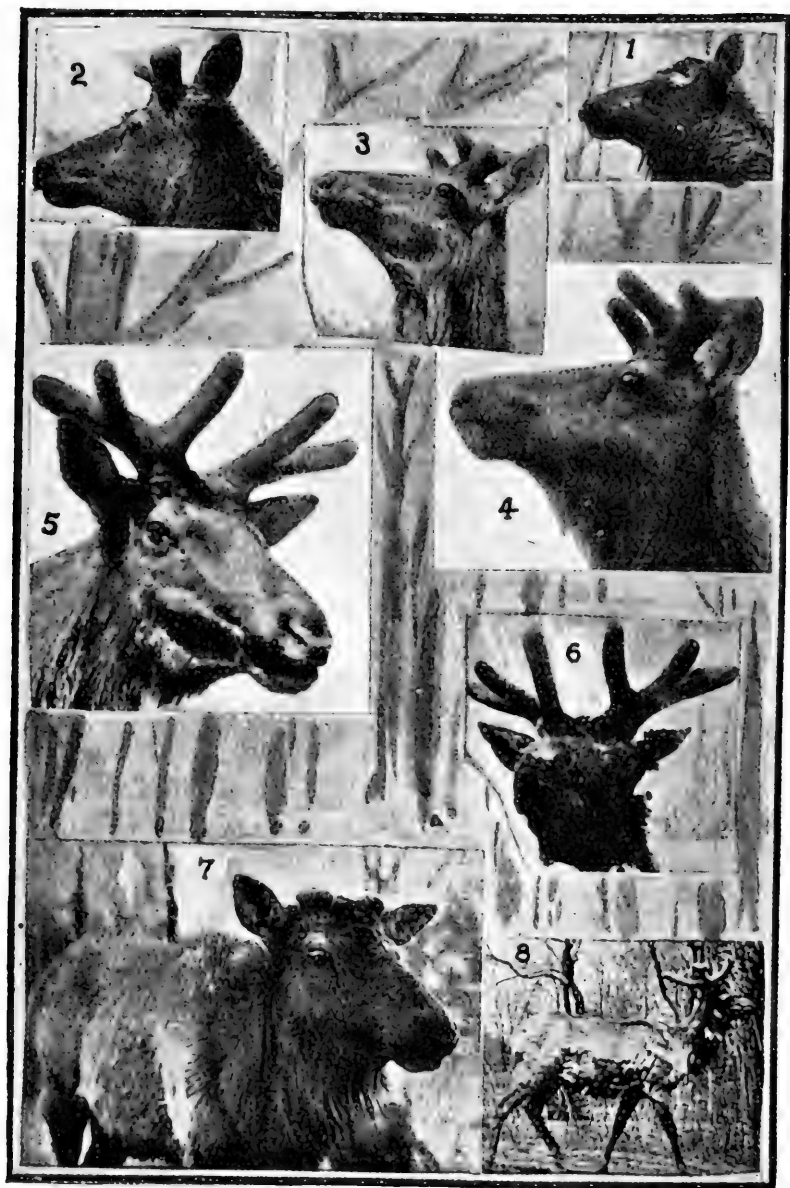
Close Comparisons Showing How Mistakes are Made.

trail. Then follow it, not with your eyes upon any one track and then shifting to the next one, but with eyes fixed as far away as possible, and with a gaze that takes in at once twenty-five or thirty feet of the trail. After trying this for a few days you will discover a marked difference in the speed with which your eye catches each footprint, in the distance at which it will catch them, and in the number it will take in at once. On each day look also for the tracks of the preceding day and days before that, until you can no longer find them; and note carefully the difference in the appearance of freshness, a very important point. When it becomes easy to find and follow your trail on such ground, change to more difficult ground. Unless you live in a large city all this kind of practice may easily be had near home. A cow or horse track, off the road, is also good to practice on. But remember to always try and see as far ahead as possible on the trail. Tracking does not, as some might suppose, consist in picking out each step by a separate search, but in a comprehensive view of the whole ground for several yards ahead. Sometimes it is necessary to grope one's way from step to step like a child in its primer, as where the trail gets very faint or turns much; but generally the experienced tracker reads several yards of the trail at a glance, just as the fluent reader does words in a book. The gaze is fixed quite as much on the surrounding ground, and the trail appears almost to stand out in relief.

The appearance of a deer's track upon bare ground varies very much, and a trail may in a quarter of a mile run through a dozen or more variations. All appearances may, however, be included under the following heads, and the great majority of tracks you will see will correspond exactly with the description of the class:

- 1st. Distinct impressions of the whole hoof.
- 2nd. Faint impressions of only the points of the hoof.
- 3rd. A slight rim of dirt or dust thrown up by the sharp edge of the hoof.
- 4th. Slight scrapes upon hard ground, recognizable only by the change of color, being made by a faint grinding of the finest particles of the surface without any impression.

Antlers and Horns of the Elk.



A Month's Growth of Antlers—Up to the Shedding Season.
 The Last Picture in this Illustration Shows the Condition of
 Coat in Spring When Summer Hair is Coming in and
 Winter Hair is Being Shed.

5th. Mere touches or spots showing only a faint change in the shade of the color. There is scarcely any air so dry that the ground during the night will not absorb a trace of moisture. The least disturbance of the top particles of such soil, even without grinding them over each other, will make a difference in the shade of the color, which will be visible under some point of view though invisible from others, depending upon the direction of the light.

6th. Crushing or grinding of the surface of friable rocks, and mere scrapes or scratches on harder rock or frozen ground.

7th. Depressions in moss, grass, dead leaves, etc.

8th. Dead leaves, sticks, etc., kicked or brushed aside or overturned, or broken or bent, etc.

9th. A plain bending or separating of the spears of grass or weeds. This is generally caused by the feet treading down the stalks at the bottom and not as the next (No. 10) is.

10th. A bending of the spears of grass or weeds, etc., by the legs of the passing animal. In this case the bend itself of the spears is hardly noticeable except by the change in the shade of light cast by them. In such case a faint streak of differently shaded color will be found running through the grass or weeds, visible only from some directions.

11th. Change of color from brushing dew, rain-drops, or frost from grass, weeds, etc.

12th. Upturning of the under surfaces (generally moist) of stones, leaves, etc.

These twelve classes include about all you will need to study. There are, of course, some others, but generally so accidental and rare that you had better skip such places and seek the trail farther on, such as the under surface of dry leaves pressed against wet ones beneath but not upturned. It will not be worth while to spend time on a trail in looking for such signs.

Where the animal has run or bounded it is, of course, easy to follow. But this generally shows that you have alarmed it, or that some one else has. You already know your prospects in such a case. About the only tracks worth

following are those where the animal was walking, and these are the very hardest.

I should deem it unnecessary to mention the peculiar shape of a deer's track had I not known the tracks of both hogs and sheep frequently taken for those of a deer. Both hogs and sheep have more round and uneven pointed hoofs than a deer has. A hog, too, spreads his toes out, and a sheep generally does more or less. A deer always keeps his toes tight together, except when running, and sometimes when walking on wet and slippery ground. There is once in a great while a deer with spreading toes, and once in a great while a sheep with a foot almost like a deer's foot. But these are too rare to give you any trouble. The feet of an antelope are still sharper, if possible, than those of a deer, though there is often resemblance enough to deceive nearly any one judging by the mere footprints without regard to the nature of the ground, the number of animals, etc. A calf has also a spreading foot and much more rounding toes than those of a deer, as well as a larger hoof. The goat makes a solid track, very uneven in front. The difference in the distance of the step will generally settle most cases of doubt, as a deer has a much longer step than a sheep, hog or goat. The feet of these animals also drag more in snow than do those of a deer.

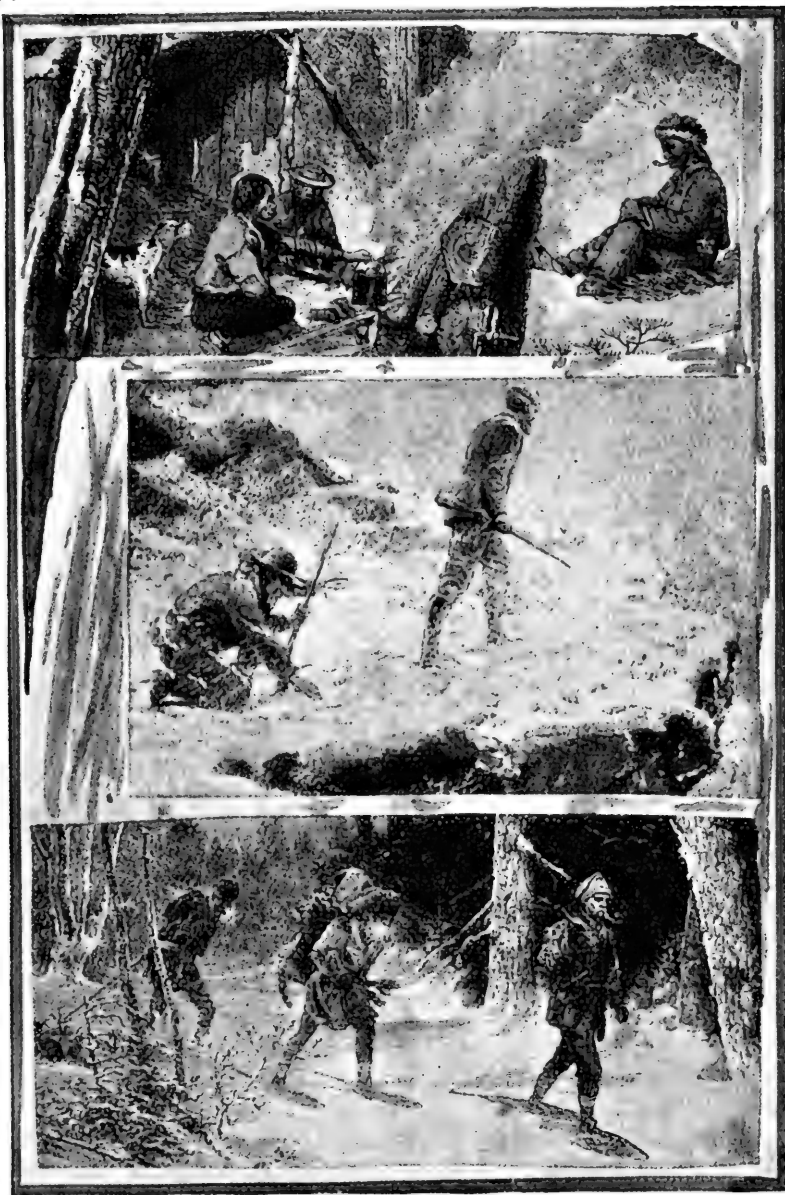
When the track runs over ground where it becomes hard to recognize it is best to skip that part and look for it farther on. And this must also be done where you can easily follow it but cannot do so without some danger of alarming the game; as where the trail runs down a hillside in plain view of the valley or basin in which the game is likely to be, or turns down wind, etc., etc. And where it is necessary to circle the trail when deer watch the back trail, etc., etc., it must be found again in the same way.

In order to do this a knowledge of the deer's habits and movements is indispensable. So is a quick and comprehensive grasp of the features (or "lay of the land") of the country where you do not already know them. You must know the kind of ground to which a deer is most likely to go at any particular time of day, the length of time he is likely to remain there, how far he is likely to travel, etc.,

etc., and be quick to see the most advantageous way to approach such places as the game may probably be in, as well as the best and easiest place to regain the trail. All of which will so vary with the locality and the wildness of the deer that little advice can be given about it except generally, as has been already somewhat done and will be continued farther on. And even where the trail is easily followed this kind of knowledge will enable you to make many advantageous flank movements, etc.

The freshness of a track is generally less easy to determine upon bare ground than upon snow, though it can be done with far more certainty than one would suppose. It is indeed often more difficult than it is upon snow to distinguish a track five minutes old from one, two or three hours old. And sometimes a difference of several hours cannot be noticed. But it is generally very easy to tell with certainty the track of today from that of yesterday. There are places, however, where sometimes even this can hardly be done, as in coarse dry sand, dry dead weeds and grass where the stalk does not straighten again, but the slant remains and continues to make a different shade of light, etc., etc.

Where dew, frost or rain-drops have been brushed from grass or weeds the freshness is, of course, unmistakable. So where wet leaves, stones, etc., have been upturned, if the air is dry the freshness is also easy to determine. The beginner will find little trouble with anything but dry ground, rocky ground, etc. And here he must learn to note the shade of color in case of mere scrapes, and the smoothness and fineness of the outlines in case of distinct impressions. Where tracks are not deep they are often obliterated in a few days, and this even without any rain or strong wind. There is always more or less moving of ants and birds over them; there is always more or less dust falling from the air, the bushes, etc., and the faintest breeze stirs up more. If they do not in a few days obliterate a track all these things will quickly give it an appearance unmistakably old. The brighter color, too, of any track on dry ground will generally by one night, however dry the air may apparently be, be restored to the color of the ground around it, though the outline, if any, may yet remain distinct. On the dry hills of south-



Right and Wrong Ways of Travel.
 Always Follows Your Guide's Instructions Implicitly.
 In the Center Picture We See the Mistake of "Going It Blind"—
 Note the Old Guide "Feels His Way," the Other Dis-
 regarding "His Warning" Makes a Fatal Mistake
 in a Dangerous Location.

ern California I have time and again noticed that tracks that I had followed with ease, and where the imprint of the hoof was perfect, were gone in four or five days, and this where there were no quails trooping over the trail. This same obliteration takes place there with the droppings during the dry season, though this occurs more slowly. They are not merely bleached out, but they disappear. This will sometimes happen in a fortnight or so, though more often it takes months. Where there is rain they will often go sooner. But color and gloss will generally determine their age anywhere.

I have confined myself in this chapter only to very general hints, as nothing will supply the place of practice, and practice will supply all I have omitted. Without practice, and considerable of it, much success in bare tracking is out of the question. It is not half as hard as it is generally represented, but it is still no child's play. As long as you have to grope your way from track to track it will be too slow. You must study the ground until you can see tracks almost stick out from it, and see the line of the trail yards and rods ahead.

The besetting sin of most trackers when upon bare ground is allowing the trail to take too much of their attention. And often while they are looking at the trail the game is looking at them.

Sometimes it may be best to skip the whole of the trail, using its direction only as a general guide; as where you find it leading from a spring toward some brushy basin upon the mountain-side, which is a favorite resort for deer during the day. And sometimes if you find a fresh trail coming down from such a place to a spring, but can find no trail returning, it may even be worth while to back-track the incoming trail, as the deer may have returned to the basin by a roundabout way, over ground or through brush where it is too hard to follow them. The size and character of the basin and the quantity of other good lying-down places must determine such questions.

Sometimes you get personally acquainted with a certain deer or set of deer so that you not only know them by

sight, but know their tracks at once; know where they will keep, where they will run if started, where they will be tomorrow if started today, etc. You come to know them perfectly, but there is always something the matter when you find them. They are too far, or jumping too high, or—or—well, in short you have not yet got them. The tracks of such deer are a pretty sure guide to their whereabouts without adhering to the tracks themselves.

DEER HUNTING

Where deer are plenty they are often seen in the woods, but although they are often shot in one of these happen-soes, it takes something more than this to make a successful deer hunter. It requires an understanding of the habits of the animal. In the spring of the year, when the deer is poor, and worthless as food, and the hide is thin and good for nothing, he is careless as to the approach of man, and may be seen in the fields searching for food.

I do not know that they would at this time be unhealthy as food, as it is said that the deer is never sick. I certainly never saw a sick deer, although I have killed hundreds in my life. Some of them were cripples, but none of them seemed to be diseased. **The deer has no gall in his liver,** but in the month of June I have found cavities in the liver filled with a substance resembling gall, having round, flat objects moving in it. I have seen several of these in one liver, but never in August or September.

While in this condition the animal is dumpish and dull, but as cool weather comes on, he wakes up; and now, my boys, look out. In September the buck begins to harden his horns. He lies in side hills facing the sun, and rubs his horns against little bushes to get off the bark or velvety skin. Now is the time to get a crack at him, if you can, for his meat is excellent for food. But you will have to be sly and keep to windward of him, for he is on the lookout, and if the wind blows from you to him, he will scent you. To know how the wind blows, ever so

little, put your finger in your mouth until it is wet and warm, then hold it above your head, and the wind will cool it on the side from which it comes. This is a hunter's trick. Now proceed to hunt against the wind, and when you discover a deer, raise your rifle and aim at the knee of the fore leg; then raise the muzzle slowly until you sight the body, and then haul off. Don't hold your breath, for that will make you tremble, but breathe freely until you get ready to pull trigger, and don't flinch or jerk it.

This is for September. In October the buck is very shy and the doe twice as much so. She goes into thickets to hide from the buck, thus keeps well hid from you, while the buck passes around the thicket watching for her to come out. When he gets sight of her, they both set off as if routed by a hunter. During this month but few deer are killed. In November the fun begins. Then the doe comes out to the buck, and the spring fawn generally keeps with its mother, so that you may get sight of the three at once, and a good steady marksman sometimes gets all three of them on the spot. To do this, shoot the doe first; the buck and the fawn will both stay around. Next shoot the buck and then the fawn, so as to have the three. I want to tell you never to go and see what you have shot, without first loading your gun. The deer may not be very badly wounded, and will jump up and run away unless you have your gun ready to stop him.

A very easy way of getting a shot at a deer will be to make a deer-lick or salting-place, after the following manner: Choose some out-of-the-way spot where deer will be likely to pass, and put some salt in the hollow of an old log, or in a hole bored near the root of a tree, or in the end of a stick driven into the ground, so that the end which holds the salt will be about twelve inches high. Among the limbs make a scaffold sufficient to rest upon while you wait the coming of the deer to lick the salt, being, of course, provided with a good gun, well loaded. While daylight lasts there is no difficulty, but when night comes on you will need an apparatus for giving light. This may be made of sheet iron, old tin, paste board, or birch bark, formed into a cylinder sufficiently large, like a stove pipe hat. At a proper

height to give room for the head, put in a false crown or a division piece. Above this, cut down one side of the cylinder wide enough for the light of a candle to shine out. In the center of the division piece put a tin socket, to hold a candle or other substance which will light quickly from a match. The candle may be made of tallow or beeswax, with a large wick, or you may use a piece of pitch pine, fitting one end into the socket and whittling the other into a mass of cone-like shavings. Being thus provided, proceed to watch with patience until the deer comes to the salt-lick. When you hear a noise in the right direction, strike a light and put the lantern on your head. As the light is shaded, except toward the deer, you can see plainly in front to the distance of some rods. The sights of the gun you can see easily and the animal's eyes will look much like two balls of fire. You may make some considerable motions while you are on the scaffold, as deer rarely observe anything above their heads.

Another way of making a salt-lick is to take a quart of salt tied up in a small bag, and suspend it to the limb of a tree or to the top of a pole. When saturated with water from rain or otherwise, it will drop brine, thus forming a salt place in the earth, where deer will lick. Now fix your scaffold according to the above directions, and directly in line with your salted place, but beyond it, place a piece of luminous rotten wood, or "fox-fire," as it is called, which can be seen in the darkest night. Get your gun so pointed while it is daylight as to aim directly at the "fox-fire"; when the deer comes to lick the salt and darkens your light, you may safely discharge your gun. Of course, this old-time trick is only useful in locations where deer are plentiful. Another thing I want to impress upon the trapper is this, never hunt much about the territory covered by your line of traps, it drives the animals all away. Hunting and trapping grounds should be miles away from each other.

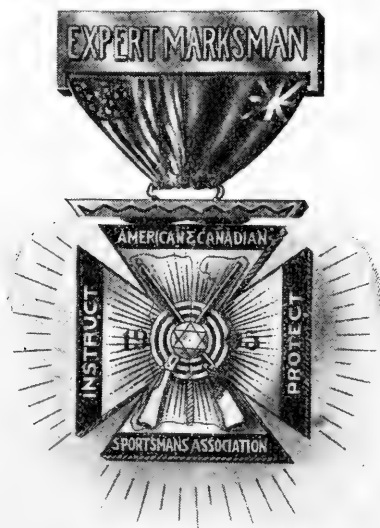


HUNTING THE MOOSE

As a rule the cow moose only stays a short time with the bull, then steals away and hides. The bull vainly trying to find her is at this time easy to approach or lure, because any noise or sound finds him searching **blindly out** the least unusual sight or sound, seeming to lose his craftiness. At these times, too, when he finds out it is not a female he sometimes charges or chases the creature which aroused him, even should it be man. Yet at a good scent of him he is off like a shot. Old hunters and trappers at this season of mating find no difficulty in "calling them." In point of fact the scraping of **the blade of an ax on a tree** is just as good as a moose call at these times; and the hunter who locates a lone bull at this time is pretty sure of heads, horns and steaks. As a rule calling should be done either early in the **morning or at dark**, and almost any imitation of a **cow** will suffice. It is no more necessary to use a birch bark cone than a speaking trumpet, the only service it does is to send the sound further and deeper into the woods. Time and again I have called moose with only the hands to the mouth, and by **rapping on a hollow tree**, as they investigate the least sound. Even the **swish of bushes** or a good shaking of a young tree will bring them nearer to you should one desire a closer, surer shot. As a rule, too, old bulls are much more wary than the younger, pessimistic ones, and to decoy an old-timer needs more than ordinary craftiness on the part of the hunter.

As a rule the moose moves silently and does not come crashing through the woods as some seem to think or say; indeed, quite the contrary. Even his feet seem to be shod with silence, and the way the big elongated creatures can navigate through the bushes without noise, scraping or rustling of the bushes is a wonder, for they somehow get through places that a man could not pass without getting his clothes, face, arms and weapon all scratched up. Again, moose, as a rule, circle to get the wind and utilizes the densest thickets he can find to search out the cows hidden there, and it seems as though they can see better in such places; but the fact is they travel and search by scent and

sound more than they do by sight alone. When two bulls come across one cow there is, as a rule, a fight, and the victor takes the prize. Indeed, it seems as though the female watches with interest the battle for the possession of her and accepts the inevitable as a matter of fact, as I have never seen the cow try to steal away at these times, but instead to look on as though the whole thing was right and proper; and to witness such a royal battle is the sight of a lifetime indeed. As a rule, I have noticed the smaller bulls seem to be generally the victors, those of mature age being the stronger, better fighters—the old ones, those with the biggest antlers, being not so nimble, limber and strong as the younger antagonists. Again, moose hug the shadows of the woods, awaiting the call of the cows or listening for them, the bull answering with grunts or sounds much different than that of the long drawn out moan and wail of the female. If it is very dry it is poor time to hunt them, but if wet or the leaves and sticks under feet are damp and soggy then is it good for still hunting, and one should wend their way to the dense thickets, clumps of woods or ridges in search of them.



The Author's Diamond Trophy

NORMAL HABITS OF ELK.

Elk is a browsing animal, and the long pendulous upper lip is provided by nature for seizing and pulling down branches. Yet in autumn, when the forest-vegetation is at its height, the elk certainly grazes to some extent.

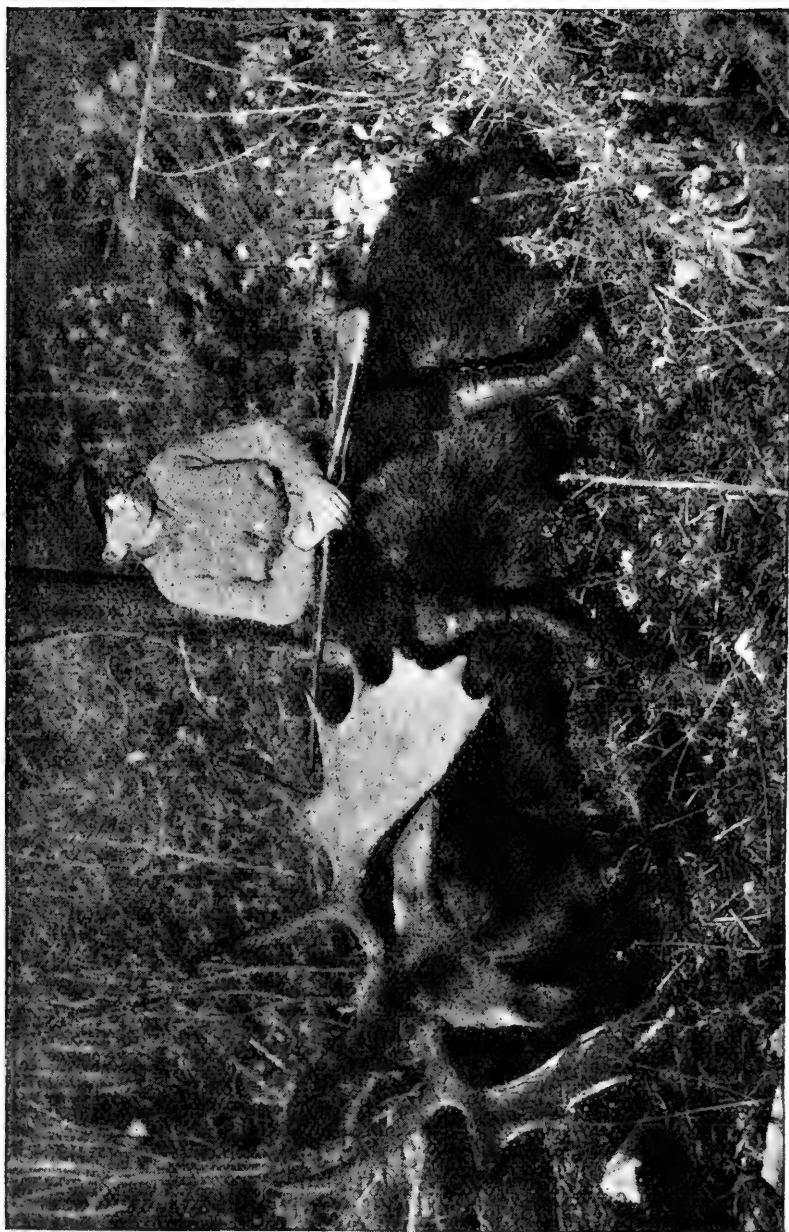
Normal habits of the elk are as follows:—He is astir with the first signs of dawn and moves about, feeding, till near noon: covering an immense extent of ground, but, owing to his circling, devious course, seldom getting very far away from the original spot. Towards midday he lies down for a siesta of uncertain duration—from two to five hours—usually under the shelter of trees; but when the weather is hot, and mosquitoes torment, in the midst of open boggy moorland, or a moist field-meadow, where his ponderous body speedily converts the bed into a tepid bath. In every case when we came upon him thus, the wily beast had circled well round to leeward before couching, thus ensuring to himself timely notice by the wind of any danger. The best time to hunt them is in the early morn (daylight) or evening (dusk). Do not follow their tracks but circle around so as to head them off and await them.

DUTIES OF GUIDES

Often has it occurred to me that a discussion on the duties of guides—what they ought to do for the sportsmen whom they take in the woods, and what sportsmen ought to expect from them—and I am going to give my views on the subject from the point of the guide.

For the last twenty years guiding has been the principal source of my income and I have been fairly successful at the work. I think I have a fair idea of what is due to both sides and wish to do what is right by both.

Here my remarks will apply, for instance, to New Brunswick and I will describe the methods followed by the most successful guides of the Province. When a man, who has knowledge of the woods and some experience with the work, decides to take up the business for himself he begins by look-



Success at Last.

ing up the best piece of game country he can find—a piece in which no other regular guide makes a practice of hunting. Having found such a suitable place he next makes inquiries as to the ownership of the land—that is if it is private property. In any case he submits a request to the owners or agents for permission to build camps and use it as his hunting territory. If he is a reliable man his request is generally granted, for all wild land owners are fully aware of the fact that in such a case the guide takes a keen interest in keeping down fires. Good camps with stores in them are far more safe than having all kinds of people running over the place making fires just where they please and leaving them without properly extinguishing them. It thus comes about that a good guide should find no great difficulty in securing his hunting territory.

Having managed so far his next thought should be to fix his home camp. This camp, while fairly easy of access, should be well situated for the game. Here will be fixed the main supply depot and general stores, and here the guide will keep most of the tools he uses in his business.

A thorough survey of his hunting ground, with particular reference to game possibilities, will follow. Moose is the game most desired by sportsmen, and in September and October they are generally to be found around the ponds and dead waters. Trails should be cut from the home camp by the easiest routes to these haunts of the moose. In cases where the distances from the home camp are to be counted in miles it is best to fix small out camps suitable for a few nights' stay should circumstances render such desirable. Early mornings and late evenings are the best of times to find moose in these places. It thus happens that when a party have remained out till it is too dark to see to shoot they can make their way to one of these out camps and find everything prepared for their accommodation. A supply of dry wood will have been cut and stored up and no noise is necessary to make a fire. By forethought and preparation the sportsman and his guide are able to pass a pleasant evening, to have a comfortable night's rest and to be, on the ground by daylight prepared to meet Mr. Moose.

Once the territory is filled up in this fashion no other

guide of any repute will go there to hunt and the guide who has gone to the trouble and expense of preparing his ground well may be assured, if he is a good man at his work, of a return for the same. That is our New Brunswick method of hunting and experience has shown that it is a good one.

One of the first and most important requisites of a good guide is a knowledge of the game he hunts, their habits, and the places they frequent.

In the next place he should possess a thorough acquaintance with his hunting territory and know just where to work for his game at different seasons and under different weather conditions. When the head guide has this knowledge any man can do the rest fairly well by following the leader's advice.

For most of the moose hunting in New Brunswick it is necessary for the guide to be a good canoe man. He should be able to handle his canoe quietly and steadily with either pole or paddle. If he sees his game a long way ahead on the shores of lake or stream he ought to be able to manage his canoe in such a way as to get his sportsman within easy range of the game, to steady it for the shot, and to be able by his ready watchfulness to tell the sportsman just where his bullet struck.

It is true there are many sportsmen who are able to give good accounts of themselves under any conditions. This, however, is not the case with the majority of them. Many are on their first big game hunt and have no experience of the woods. If they are good target shots that does not necessarily mean they are good game shots. It is the duty of the guide to see that the sportsman of little or no experience has a fair chance at the game he is after—a fair chance according to his ability. It must be remembered that what is a good chance for an expert is not a fair chance at all for a man new to the business. Even when the game is moving slowly through the trees it is difficult for a man unaccustomed to firing in that way to make a successful shot. The guide should know this and not insist upon the sportsman shooting unless he is a quick shot and has a fair chance. The guide must not think that what is an easy shot for him with his experience is anything like an easy shot for the sportsman he may be guiding.

I well remember several years ago guiding a sportsman who was a good target shot, though he was slow, as target shots usually are. One afternoon we came on a big bull moose in a nice open growth of fir trees and the animal was only sixty yards away. The bull was walking slowly and every few steps he made a slight pause. The chance seemed to me a most excellent one and I urged him to take a shot. The trees, however, bothered him so much that he allowed the bull to walk away without firing. I admit that I was provoked and told him sharply that he should have taken the chance as it was not likely he would have a better one. Very quietly he replied to me that for a man of his ability at shooting the chance was not a good one. I was struck at the time with the justice of his answer, and have never forgotten it. Indeed, the more I have thought it over the more I have agreed with it and tried to act up to its spirit.

One of the best pieces of advice I can give to a guide is to do his best to give the sportsman he may be guiding the best chance of a shot according to his ability. Allow him also to shoot his game for himself. Don't carry a rifle unless requested and then use it only on wounded game that might otherwise get away and die in lingering agony. It is not satisfactory to either party to have the guide shoot the game and give the sportsman the credit of the performance. The sportsman will appreciate the efforts of the guide to give him a good shot far more highly, and if successful he will think far better of that guide than if the latter took advantage of a more difficult situation and shot the game for him.

I have heard the assertion made on several occasions that the sportsman should do his share of the work with the guide. Now I think it is wrong to expect anything of the kind. I have seen a few who were willing to do this and who really seemed to enjoy it. They were, however, very few indeed. Of course, their object in visiting the woods is sport and not work. The sportsman is there for sport and the guide is there to do the work.

The sportsman should not be required to carry a pack. A man with a pack on has a poor chance of a shot, and

when in a game country, when an animal may be met any minute, the sportsman should be in a position to fire a shot at any time. Carrying a pack is also too much like work and the guide is paid to do the work. If there is more than one load to carry take another man along to help, or go over the portages twice, either way is better than giving a pack to the sportsman. It is necessary for a guide to be able to cook fairly well even if there is a regular cook for the party. Both the sportsman and the guide are likely to be away from the main camp on occasion and perhaps for several days together. At such times the guide should prepare some tasty meals. He should know how to take care of the game when it is killed and be able to prepare the head for mounting. He ought, further, to be able to do three days' work in one if the occasion calls for it. Above all he should go about his duties cheerfully and then they will be performed well.

The guide, if he knows his business, should anticipate most of the wants of the sportsman, and not wait for them to be made known before giving his attention to them. I will not go so far as to say that for a man to be a good guide it is necessary for him to have had an education; but I will say he can make a much better guide if he has had one. A good guide should be able to answer questions about game, fish, woods and waters with intelligence.

A man to be a good guide must be sober and industrious and if he doesn't use tobacco so much the better. I know that many will not agree with me on this point, but readers would be surprised to know how many of the best guides in America use neither tobacco nor alcoholic liquors.

The guide should be on deck bright and early in the morning prepared to call the sportsman and not waiting to be himself called. He should likewise be prepared to propose hunts and not wait for the sportsman to invite him out. He should always speak the truth and never exaggerate, particularly with regard to game. There is no way by which a guide can lose a man's confidence quicker than by exaggerating over game matters, and once that confidence is lost it is by no means easy to regain. When-

ever an appointment is made be prompt to the minute, indeed be on hand a few minutes before if at all possible. Be friendly, but not offensively so; talk when you are invited, but not too much; be courteous and always willing and you will get along. Last but by no means least learn to keep your eyes open and your mouth shut—which means see all there is to see and make no noise—if you would be a successful hunter.

Guides who follow these rules can command good wages and will get work when they are known. Sportsmen are good fellows, with very few exceptions, and I have found little trouble with the worst I have had. When out on the hunt if the sportsman wishes you to carry his coat or sweater—carry them. That is what he wishes you to do and as he is paying you for carrying out his wishes there is no reason to kick if in reason.

There are however, very great differences in the sportsmen one has to guide. Some go purely for sport and enjoyment and have a real good time, none the less good if they fail to get game, for game with them is not the sole object of the outing. These men are of the right sort and it is an unalloyed pleasure to be with them. That, however, is no reason why they should be taken to a place where there is no game. They can be happy without killing a whole lot, but they like at least to see the game.

Then there is the other kind of sportsman whom no guide wishes to see. Fortunately there are not many of his class, but there are a few, and we have all seen him at least once. He is the man who doesn't care to hunt, it is no pleasure to him; but it is a fad to kill a moose and he wants to do it. His moose must be a record breaker or he's not satisfied. He is in a desperate hurry and whatever he does must be done quickly. He is the man who gets lost in the woods with his guide and the latter might have starved there but for his cleverness in getting both out. By the time he has been in the woods a week he knows more about the game and the country than any guide can tell him.

HINTS ABOUT HUNTING.



Now, Altogethe ! (Incoming Shooting)

HINTS ABOUT HUNTING

Best Way for the Inexperienced Sportsman to Get a Bag of Wild Ducks

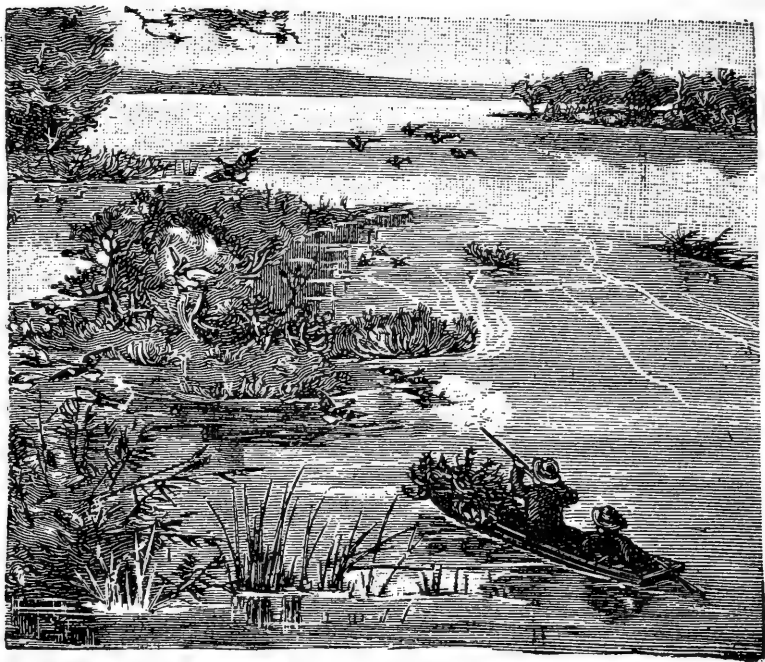
This is the season when every normal, healthy minded man and boy feels an inclination to go a-hunting. The love of a gun and a hankering for healthy sports afield are as natural to the masculine American as is a periodical craving for food. He comes by it honestly, through inheritance from forbears who, in hewing homes from the wilderness, found firearms a necessity as a means of filling the dinner pail, as well as a weapon of defense.

And it is this time of the year when hunting is at its best the country over. The fat of the forest and the field, hidden by fur and feathers, awaits the garnering, and the nip of the frosty air makes the pursuit more exhilarating.

SHOOTING ON THE WING

Every boy knows a little about shooting and something about game. If he has shot at targets or sparrows with an air rifle in the city he should have a degree of success in the country shooting rabbits "on the set" with a shotgun. But when it comes to hunting them and hitting them on the run it requires a little more practice than the air-rifle expert has had. To get within range of a frisky squirrel without causing him to run into a hole in a tree takes more than marksmanship. And duck shooting, more than any other shooting, requires skill and experience. Traveling from Canada to Louisiana with only two or three stops requires strength and speed on the part of the duck—and men who remember their first experience in shooting broadside at a "red-head" going at wind-splitting speed will agree that there are easier targets and slower ones, and right now, when the ducks are flying, it will not be

Sketches for Shot Gun Shooters.



Sculling for Wild Fowl—About the Shores.



Duck Hunting from Blinds using Decoys.

amiss to tell the novice some facts that have become the property of old hunters by trying experience.

In the first place, no rule holds good in respect to finding the ducks. They may be hovering over ponds and lakes when you are hunting on the river. The next day you go to the lakes, and the river hunters will have good shooting that day. And again, you may sit in your river blind from daybreak until noon and finally get up, disgusted, and go home. Then the hunter who comes along and puts out his decoys along in the middle of the afternoon may get the game. The one sure rule is: If they're there you'll find them; if they're not, you won't.

The facts that usually govern the flight of ducks, however, are these: After a cold wave in the autumn the ducks seldom stay long in one place and fly and feed irregularly. If the air warms again they will linger in the locality where they chance to be, provided there is plenty of feed and a wide enough expanse of water. If on the river at daybreak they usually will rise and fly soon afterward to feeding grounds; if in large flocks they will fly to ponds where wild rice, "duck potatoes" or other marsh food grows. Occasionally they will visit a cornfield or a cattle feeding lot if secluded. Toward noon they usually return to the river and sun themselves, paddling around sand bars until late afternoon, when they take another flight toward their shelter or feeding ground, either on the still sidewater coves along the river or in the marsh grass about the lakes. This is the schedule that gives rise to the general opinion among hunters that lake and pond shooting is better in the morning and evenings and river shooting better during the middle of the day.

Ducks Fast Flyers

This habit of action is that most generally carried out by the ducks, in both fall and spring, in the middle states. Some varieties of the birds, however, are governed by no

such rules. The redheads and the canvas backs, for example, seldom leave the rivers and usually stop only after long flights. Both are unusually fast flyers.

The prime essential in hunting ducks is to select a suitable stand. If on a river and ducks are flying high in large flocks, select a sand bar at the beginning of a large bend in the stream. That is, choose a place over which the flocks will fly in "cutting off" a big bend. Being in the "line of flight" counts for a great deal in river shooting. Learn the natural crossing places of the fowl and then prepare a good blind, or shooting box in which to sit and await results, after setting out decoys.

The one rule in building a "blind" is to make it appear as near like its surroundings as possible. In addition to that make it high enough or deep enough to hide you from the water without being cramped, for often when the birds show friendliness toward your decoys they will alight in the water a long way from the wooden ducks and take their time about swimming close to the inanimate swimmers. It will be a long, tiresome wait until they get within range if you haven't room to sit comfortably.

Building a Blind

If there is an abundance of drift wood along the water's edge make a blind out of it. If the shores are free from drift or shrubs dig a hole in the sand large enough to hold one or two shooters, make the opening no longer than is absolutely necessary. It may be made less conspicuous by partly covering with boards, throwing sand over this improvised roof to hide the boards from view. Wear clothing the same color as the surrounding shrubbery or background. Brown clothing for sand bars is best. Above all else, avoid wearing a black hat or coat, as the birds are extremely wary of black objects. For ordinary shooting put out at least two dozen decoys, placing them about seventy-five feet from the blind and scattering them in uneven positions. Then get into the blind and await the game.

Duck shooting is neither an art nor a science; it is a combination of both, made possible only by practice. Neither does it follow that because a man may be a good trap-shot at clay or live birds he will be a good wing shot in the blind. There are few "straight-away" shots from the blinds and many cross shots, with an exceedingly swift target. It is the fast cross shots and the quick, startled rises that puzzle the beginner.

Mistakes In Wing Shooting

The first mistake a novice usually makes is to aim directly at the fleeing target. This will sometimes prove effective on a "straight-away" at short range, but more often it fails. It is necessary to "lead" the object, that is, aim a little ahead of it, to be successful. Just how much to lead the target depends upon the distance from the mark, the rate it is traveling and the nature of the powder used.

Formerly when black powder was used exclusively, hunters used to aim about two feet ahead of a fast duck on a cross shot. But scarcely any hunters "burn soft coal," since the introduction of the quicker and stronger smokeless powder and the result is that the leads are shorter, usually about a foot.

Snap shooting is the name applied to the style of shooting usually followed by the best trapshooters and field shooters. It consists of aiming directly at a space just ahead of the moving object and pulling the trigger without following the line of flight by moving the gun. A snap shot is usually the most effective in all kinds of shooting, according to experienced marksmen. It is easy to misjudge distances on or over water, and a mistake common to the novice is to shoot at a bird beyond killing range.

American Game Birds.

Sportsman's Favorites.



The Plover



The Woodcock.



Male and Female Mallards.



The Wood Duck.



The Grouse.

HABITS OF THE WILD DUCK

The wild duck pairs very early in the year—the period being somewhat delayed by hard weather, and the ceremonies of courtship, which require some little time. Soon after these are performed the respective couples separate in search of suitable nesting-places, which are generally found, by those that remain with us, about the middle of March. The spot chosen is sometimes near a river or pond, but often very far removed from water, and it may be under a furze-bush, on a dry heath, at the bottom of a thick hedge-row, or even in any convenient hole in a tree. A little dry grass is generally collected, and on it the eggs, from 9 to 11 in number, are laid. So soon as incubation commences the mother begins to divest herself of the down which grows thickly beneath her breast-feathers, and adds it to the nest-furniture, so that the eggs are deeply imbedded in this heat-retaining substance—a portion of which she is always careful to pull, as a coverlet, over her treasures when she quits them for food. She is seldom absent from the nest, however, but once, or at most twice, a day, and then she dares not leave it until her mate after several circling flights of observation has assured her she may do so unobserved. Joining him the pair betake themselves to some quiet spot where she may bathe and otherwise refresh herself. Then they return to the nest, and after cautiously reconnoitering the neighborhood she loses no time in reseating herself on her eggs, while he, when she is settled, repairs again to the waters, and passes his day listlessly in the company of his brethren, who have the same duties, hopes and cares. Short and infrequent as are the absences of the Duck when incubation begins, they become shorter and more infrequent towards its close, and for the last day or two of the 28 necessary to develop the young it is probable that she will not stir from the nest at all. When all the fertile eggs are hatched her next care is to get the brood safely to the water. This, when the distance is great, necessarily demands great caution, and so cunningly is it done that but few persons have encountered the mother and offspring as they make

the dangerous journey. If disturbed the young instantly hide as they best can, while the mother quacks loudly, feigns lameness, and flutters off to divert the attention of the intruder from her brood, who lie motionless at her warning notes. Once arrived at the water they are comparatively free from harm, though other perils present themselves from its inmates in the form of pike and other voracious fishes, which seize the ducklings as they disport in quest of insects on the surface or dive beneath it. Throughout the summer the duck continues her care unremittingly, until the young are full grown and feathered; but it is no part of the mallard's duty to look after his offspring, and indeed he speedily becomes incapable of helping them, for towards the end of May he begins to undergo that extraordinary additional moult, loses the power of flight, and does not regain his full plumage till autumn. About harvest-time the young are well able to shift for themselves, and then resort to the corn-fields at evening, where they fatten on the scattered grain. Towards the end of September or beginning of October both old and young unite in large flocks and betake themselves to the larger waters, many of which are fitted with the ingenious appliances for catching them known as decoys. These are worked on all favorable occasions during the winter, but the numbers taken vary greatly—success depending so much on the state of the weather. If long-continued frost prevail, most of the ducks resort to the estuaries and tidal rivers, or even leave these islands almost entirely. Soon after Christmas the return flight commences, and then begins anew the course of life already described.

THE CORRECT LOADS TO USE

This table is an absolute guide to the proper or choice loads to use for various kinds of game. Follow it rigidly and you will always be properly equipped for the field:

Duck— $3\frac{1}{4}$ or $3\frac{1}{2}$ Drams Dead Shot, $1\frac{1}{8}$ ounces No. 6 Shot.

Goose— $3\frac{1}{2}$ Drams Dead Shot, $1\frac{1}{8}$ ounces No. 2 or B. B. Shot.

Plover—3 Drams Dead Shot, $1\frac{1}{8}$ ounces No. 8 Shot.

Rail—3 Drams Dead Shot, $1\frac{1}{8}$ ounces No. 9 Shot.

Snipe and Woodcock—3 Drams Dead Shot, $1\frac{1}{8}$ ounces No. 8 or 9 Shot.

Quail—3 or $3\frac{1}{4}$ Drams Dead Shot, $1\frac{1}{8}$ ounces No. 8 Shot.

Prairie Chicken— $3\frac{1}{4}$ Drams Dead Shot, $1\frac{1}{8}$ ounces No. 6 or 7 Shot.

Rabbit and Squirrel—3 Drams Dead Shot, $1\frac{1}{8}$ ounces No. 7 Shot.

Dove—3 or $3\frac{1}{4}$ Drams Dead Shot, $1\frac{1}{8}$ ounces No. 7 or 8 Shot.

Grouse or Partridge— $3\frac{1}{4}$ Drams Dead Shot, $1\frac{1}{8}$ ounces No. 7 Shot.

Wild Turkey— $3\frac{1}{2}$ Drams Dead Shot, $1\frac{1}{8}$ ounces No. 2 Shot.

HINTS ON RIFLE SHOOTING.

1. Hold the butt firmly against the shoulder, and do not turn the head away at the instant of pulling the trigger. Fire low rather than too high. Do not flinch or jerk the trigger.

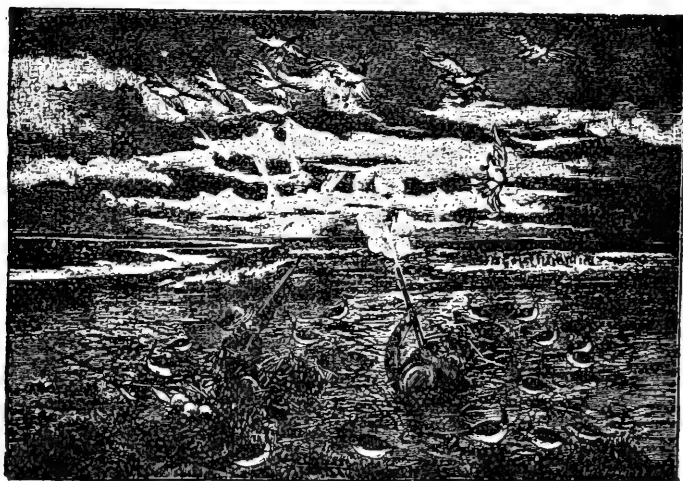
2. After firing a few shots on a dry, hot day, the bullets gradually fall lower and lower, in consequence of the fouling of the barrel. The barrel should be kept clean, and, as far as possible, not over-heated.

3. The condition of the atmosphere noticeably affects the course of the bullet. The more moisture there is in the air, the less the elevation required. The bullet is frequently noticed to fall immediately after a rain. Warm air offers less resistance to the bullet than does cold air. A fall of 20° in temperature will cause the bullet to lower ten or eleven inches at 300 yards range. In firing over water the elevation must be increased, in consequence of the lower temperature of the air over the water. In ascending the mountain the air becomes more and more rare, and consequently the resistance to the bullet is less on the mountain than at its base. Mirage, an optical illusion occurring in level districts on very warm days, causes the target to apparently raise in the air and become distorted in shape.

Sketches for Shot-Gun Shooters.



Flight Shooting on Regular Feeding Grounds.



Wild Geese Shooting. (Lay Down Blinds and Decoys)

This materially affects such objects as are near the ground, and engenders a tendency to shoot too high.

4. The influence of light and shade on the firing is very remarkable. On a bright day the target is refracted so as to apparently stand higher, which would theoretically require a lower elevation than on a very dull day. When the light shines directly on the target, when the target is against a light background (so that the details are better brought out), when the sun shines on the firer's back, when the atmosphere is clear, when the ground is level and uniform in appearance or when it gradually rises toward the target, the same will appear much nearer, and will theoretically require a higher elevation. The best shooting is invariably done on cloudy days when the sun's light is evenly diffused. It is very difficult to shoot well when passing clouds intercept portions of the sun's light and heat. It is readily seen how this disturbance might set up currents in the air which would tend to carry the bullet from its course, and how the rays of light deflected from their course before reaching the eye would cause the target to apparently occupy a false position. It will be well to diminish the elevation should the sun suddenly appear and light up the target while the firer still remains in the shade, and to increase it should the target remain in the shade while the sun shines on the firer.

5. Bright sights and barrels are obviously objectionable. The reflection of the sun's light on the sights causes them to appear as brilliant points and precludes the possibility of an accurate aim. If the sun's rays come laterally the trouble will be yet greater, inasmuch as they will brighten the rear side of the front sight and the opposite side of the rear sight notch and cause a tendency to shoot away from the sun.

The refraction of the sun's rays from the polished barrel causes the target to become indistinct and to assume the appearance of motion. The sights and the barrel about the muzzle should be blackened with smoke if nothing better is at hand.

6. The effect of the wind upon the trajectory and the allowance to be made therefor are most troublesome questions for the marksman. Winds are generally classified as follows:

Gentle, 4 miles per hour.

Moderate, 10 miles per hour.

Fresh, 20 miles per hour.

Strong, 35 miles per hour.

Very high, 50 miles per hour.

Gale, 80 miles per hour.

Inasmuch as the wind is continually changing in intensity and direction, it is almost impossible to make tables of allowances for it. The best skill and judgment of the marksman are brought into play when firing in mountain districts, where there are many cross-currents with which to contend. All winds, except toward the target, retard the bullet and render a higher elevation necessary. A wind from the rear helps the bullet and tends to high shooting. Experience has shown it necessary to alter the wind gauge twelve or more feet between two consecutive shots over a range of 1,000 yards, in order to make a bull's eye each time, when the wind was too high or variable. The inclination is generally to under-estimate for wind allowance, nearly every one disliking to aim far away from the target. I believe that any one with a good mind and clear sight, possessing nerve, coolness and a quick connection between will and finger, can by practice and endeavors to correct the inaccuracies pointed out in this chapter, do good shooting.

In firing the trigger, finger should never be quickly pulled or jerked, instead exert a **slow steady pull increase**, or you will depress to muzzle and spoil the aim. Amateurs frequently jerk so hard that the bullet after strikes top ground half way between the object fired at. If the bullets are **waxed** much, it fills or clogs the barrel, especially if much shooting is done, hence a lubricant should be used, or an oiled rag on a stout string, occasionally drawn through the barrel from chamber to muzzle, so as to prevent fouling, a clean barrel shoots straighter than a dirty one and the recoil is not so much, a **dirty gun always kicks**.

GOOD BOOKLETS FOR SPORTSMEN, CAMPERS, SHOOTERS, TRAPPERS, GUIDES, ETC.

"In the Maine Woods"—G. M. Houghton, P. T. M., Bangor & Aroostook Railroad Co., Bangor, Me.

"In the Fish and Game Country"—General Passenger Agent, Boston & Maine Railroad, Boston, Mass.

"Long Island"—H. M. Smith, G. P. A., Long Island Railroad, 263 Fifth Avenue, New York City.

"The Adirondacks"—Passenger Department, Delaware & Hudson Company, Albany, N. Y.

"The Adirondack Mountains"—General Passenger Agent, New York Central Railroad, New York City.

"Fishing and Shooting"—Robert Kerr, P. T. M., Canadian Pacific Railroad, Montreal, Can.

"Haunts of the Fish and Game"—G. T. Bell, G. P. & T. A., Grand Trunk Railroad, Montreal, Can.

The famous Canadian Adirondacks—Alex. Hardy, G. P. A., Quebec & Lake St. John Ry., Quebec, Can.

"Sportsman's Map of the Dominion of Canada"—Robert Kerr, P. T. M., Canadian Pacific Railroad, Montreal, Can.

"Moose, Deer, etc."—Intercolonial Railway of Canada, Moncton, New Brunswick. Also Geo. H. Shaw, T. M., Canada Northern Railway, Winnipeg, Manitoba.

"Rangeley Lakes and the Dead River Region"—F. E. Boothby, G. P. A., Maine Central Railroad, Portland, Me.

"Canoe and Paddle"—L. F. Tobie, Asst. G. P. A., Washington County Ry., Calais, Me.

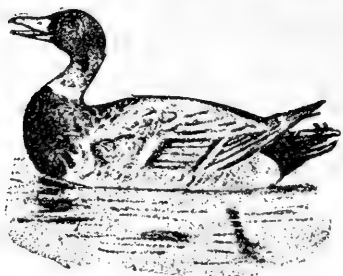
"Caribou Hunting"—J. W. Johnstone, G. P. A., Reid Newfoundland Co., St. Johns, N. F. (5c. postage).

"Fish and Game of Michigan, Wisconsin, Minnesota, North Dakota"—W. R. Callaway, G. P. A., Soo Line, Minneapolis, Minn.

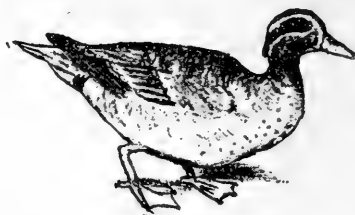
"Shooting and Fishing"—A. L. Craig, G. P. & T. A., Great Northern Ry., St. Paul, Minn.

"Fishing and Hunting"—W. B. Kniskern, P. T. M., Chicago & Northwestern Ry., 215 Jackson Boulevard, Chicago, Ill.

American Wild Fowl---and Shooting.



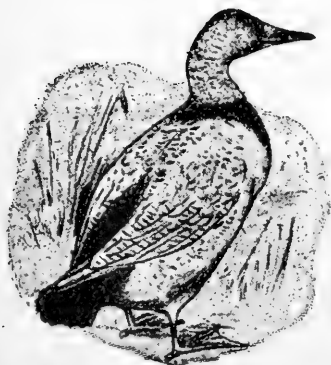
Mallard Duck.



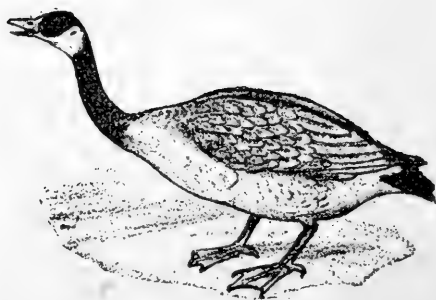
Teal Duck.



Duck Shooting on the Feeding Grounds with the
New Automatic Shot Gun.



Canvas Back Duck.



Canada Goose.

"The Lakes of Wisconsin and Minnesota"—F. A. Miller, G. P. A., Chicago, Milwaukee & St. Paul Ry., Chicago, Ill.

"Minnesota Lakes"—A. M. Cleland, G. P. A., Northern Pacific Ry., St. Paul, Minn.

"Camping and Hunting in the Southwest"—W. S. St. George, G. P. & T. A., Missouri, Kansas & Texas Ry., St. Louis, Mo.

Good Hunting for Ducks, Geese, Chickens, etc., F. A. Miller, G. P. A., Chicago, Milwaukee & St. Paul Ry., Chicago, Ill.

"Hunting and Fishing in the North Woods"—J. C. Pond, G. P. A., Milwaukee, Wis.

"Hunting in the Southwest"—H. C. Townsend, G. P. A., Missouri Pacific Ry., St. Louis, Mo.

"Fishing and Hunting in Michigan"—H. F. Moeller, G. P. A., Pere Marquette R. R., Detroit, Mich.

"Feathers and Fins on the Frisco"—A. Hilton, G. P. A., Frisco System, St. Louis, Mo.

"Hunting in the South"—W. H. Tayloe, G. P. A., Southern Railway, Washington, D. C.

"Quail, Turkey, Ducks, etc."—W. J. Craig, G. P. A., Atlantic Coast Line, Wilmington, N. C.; also C. B. Ryan, G. P. A., Seaboard Air Line, Portsmouth, Va.

"Camping in the Rocky Mountains"—S. K. Hooper, G. P. & T. A., Denver & Rio Grande System, Denver, Colo.

"Texas Gulf Coast Outings"—G. F. Lupton, G. P. A., San Antonio & Aransas Pass Railway Co., San Antonio, Tex.

"North Country Fishing and Hunting"—G. W. Hibbard, G. P. A., Duluth, South Shore & Atlantic Ry., Marquette, Mich.

"Hunter's and Fishermen's Guide"—W. J. Kealey, G. P. A., Chicago, Kalamazoo & Saginaw Ry., Kalamazoo, Mich.

"A Sportman's Paradise"—T. J. Anderson, G. P. A., G. H. & S. A. Ry., Houston, Tex.

"Mexico"—G. W. Hibbard, G. P. A., National Lines of Mexico, Colonia Station, Mexico City, Mexico.

(Note—In addressing a letter requesting these booklets enclose postage and kindly mention this book and author.)

"HINTS FOR SHOT GUN SHOOTERS"



Something Wrong.

**A Series of Suggestions as to
LOADS, CHARGES, WADS, RELOADING,
SIGHTING, GUNS, SHOT,
POWDER, SHELLS,
Miscellaneous Information, Etc.**

**Points for
Rifle Users**



**Hints for
Hunters and
Campers**

SEE ALSO "TRAPPERS TRICKS"
306

SNARES.

Snares are not very certain, but they are little trouble to make. They must be set in the paths or runs of the birds it is intended to take. They are of horse hair or thin copper wire tied in a running knot. The tendency of every bird when it finds itself touched about the head is to push forward. This draws the knot tighter, until the bird kills itself.

TO TRAP SQUIRRELS.

In trapping squirrels, set a steel trap on the upper rail of a fence near where they frequent; set a pole with an ear of corn, or some other squirrel food fastened to the end of it, up against the side of the fence, leaning in such a position as to spring the bait over the trap at a height of six or nine inches; when the squirrel reaches to get the bait he will get into the trap.

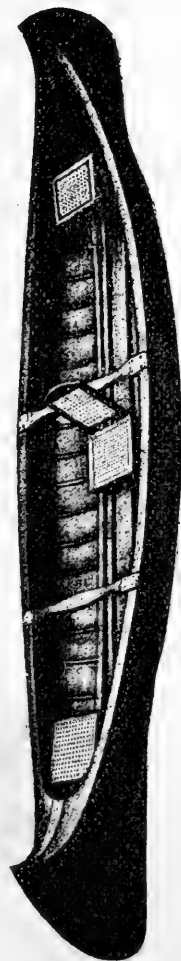
SIEVE TRAP.

Take a large sieve and prop it up with a stick, to the middle of which one end of a piece of string is tied. Strew some crumbs of bread or seeds under the trap, and also a few near by; and, taking the other end of the string in your hand, retire and conceal yourself at some distance, until the birds are attracted by the bait. As soon as you see them feeding directly under the trap, jerk the string quickly and the sieve falls. This is the simplest of boy's traps, but answers very well when there is time to spare. When a chicken is wanted about the farm house, it is often time saved to catch it in this way.

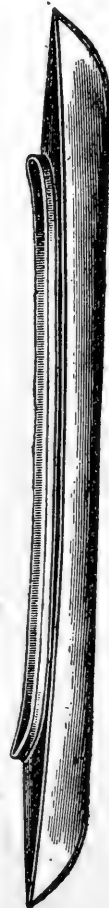
QUAIL TRAP.

A quail trap may be any kind of coop, supported by a figure four. The spindle of the figure must either be so made as to hold grain, or, what is better, some grains of

STANDARD TYPES of (Portable) HUNTING and FISHING CANOES



Portable Double End Hunting Canoe. (Bent's Model.)



The Portable Hunting Skiff. (Oskosh.)



Oskosh.



The Duck Hunter's Favorite.



Combined Oar or Paddle.

**For Other Styles of Portable
Boats—See Fisherman's
Manual.**

wheat or buckwheat are strung over a strong thread with the aid of a needle, and tied to the spindle. Quails and prairie hens easily enter a trap when the ground is covered with snow. At other times it is rather difficult to catch them.

HAWK AND OWL TRAPS.

To catch hawks or owls, take a pole 20 feet long, to be set a short distance from the house or barn or on the poultry house. Split the top so as to admit the base of a common steel trap, which should be made fast. When both trap and pole are set you may be sure of game of some kind. These birds naturally light on high objects, such as dead branches of trees or tops of stacks, and one should use judgment about the place where he puts the traps. An open field, near the chicken yard, is probably best.

TO TRAP RABBITS.

To trap rabbits take brass wire, make a noose large enough for them to put their head through; then trim a small tree near their road, fasten the wire to the top, bend over and fasten by a notch to a peg driven in the ground, then make a fence of fine brush a little across their road, leaving a hole to hang the wire in. Some use box traps, baited with sweet apple; also steel traps laid in their roads and fastened.

GOPHER TRAP.

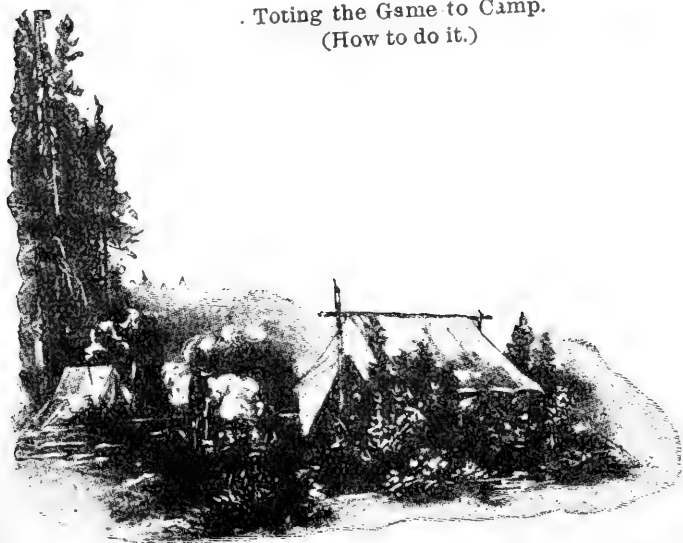
Take a hard piece of wood, about nine inches long, and turn it so that one end will be two and a half inches in diameter and the other end three inches, gradually sloping from one end to the other. With a two-inch auger bore a hole in the small end eight inches deep. Then take a fine-toothed rip saw and split it open from end to end in two

Hints and Pointers for Hunters, Sportsmen, Etc.

A series of suggestions invaluable to those who possess either rifle or shot gun.



. Toting the Game to Camp.
(How to do it.)



The Camp in the Woods. (Cut Poles for Tent Poles.)

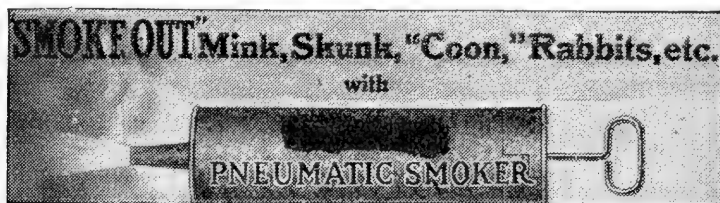
equal parts. In one of these halves a spring door is fixed, made of sheet iron, which is round like the opening and curved to fit down in the half. This is made fast on a hinge near the entrance, with a spring under it sufficient to raise it to a perpendicular, the hinge so arranged that it can only be raised to a perpendicular. Another piece of sheet iron, made round to move easily in the two-inch opening, is made, which is attached to a long, narrow strip of iron, which strip moves easily under two staples in the bottom of the half to which the door is fastened. In order to set the trap, the door is pressed down, and the end of this strip projects over it, and thus holds the door open. Then take the two halves and put them together, and slip over them a thin wide ring, made sloping like the trap, and it is ready for use. With this trap you go out where the gopher is at work, and find his last made hillock, and if it is not quite finished, all you have to do is to stick the trap in the hole, open end downward, and in a short time he will bring up his load of dirt, and, in pressing against the upper piece of iron he will push the strip of iron from over the door, when the spring will lift it up and shut him in.

FARMER'S TRAP, FOR MINK, WEASELS, SKUNK, ETC.

Take boards half an inch thick, and make a box the two sides and top 12 inches long, with one end closed; the size of the box inside being 4 inches square. A steel spring is fastened on the closed end of the box, to which is fastened a square ring at its extremity, through which the game thrusts its head to reach the bait at the one end of a catch, which holds the ring depressed and held by a wire running from the front end of the trap to the catch on the upper extremity of the bait hook. One who has tried it extensively says: "This is the best trap for skunks in the world, I believe, I have used many different kinds, but none work as well as this. You can set it at the hole in a wall or fence. It is sure fire."

SMOKE 'EM OUT AND SECURE PRIME FUR

Old successful and experienced trappers smoke out and drive animals from their dens. Every experienced trapper knows that animals can not stand smoke. Until this smoker was invented it was next to impossible to force smoke into an animal's den in sufficient quantity to drive them out on account of the dead air condition existing in such places.



The smoker is so constructed that it will produce a dense volume of stifling sulphur smoke and force it into the animal's den with sufficient pressure to mix with the dead air, penetrating into every part of the den, driving the animal out.

It is loaded with a cartridge and lighted. The plunger is then worked back and forth as shown in illustration, fanning



The Bellows Smoker.

the fire and forcing the smoke out of the nozzle at the lower end of the smoker into the animal's den. No animal can withstand these strong sulphuric fumes.

It will be found invaluable in driving out skunk, "coon," fox, rabbits, etc. It will make a mink leave its den in two or three minutes. This invention is a very valuable asset to the trapper, especially during extreme cold weather, when fur-bearers den up and hibernate. Trappers can smoke out more animals in one day than they can take in traps in a month—besides they get prime furs.

HOW TO USE PNEUMATIC SMOKERS

Graphite should be used to lubricate plunger. Oil can be applied first to make the graphite adhere to the packing. Place a few small sticks, corncobs, etc., in the fire chamber. To make a strong, stifling smoke use one part sulphur to four parts powdered charcoal. Sprinkle a tablespoonful of this mixture upon cotton or old cotton rags, roll and tie into cartridges 5 inches long by 1½ inches in thickness. A supply of these cartridges should be made up in advance of field operations. Place one or two of these cartridges in the fire chamber and the smoker is ready to use.

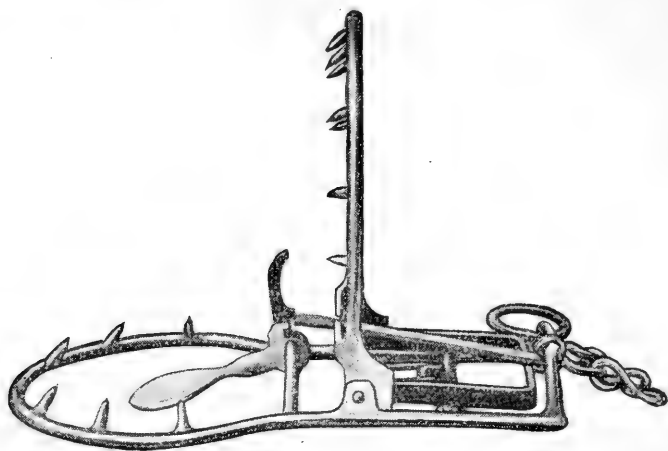
When you have located your game and have set traps, etc., to apprehend the animal when it is smoked out, take out the plunger and point nozzle up to create a draft. Light contents of fire chamber with a roll of paper, then insert the plunger and fan fire by working it back and forth slowly at first until cartridges are fully ignited. Insert nozzle and fill the den full of this strong smoke. No animal can withstand these sulphuric fumes. In smoking out large animals where the mouth of the burrow is large, best results are obtained by attaching a few feet of hose to the nozzle and packing around hose with old sacks, etc., to keep in smoke. In smoking out mink, weasel, gopher, etc., a hose will not be necessary. Leaves or some light material can be used to prevent smoke escaping from hole where trap is set.

Caution.—Never use any kind of oil, tar or turpentine in fire chamber.

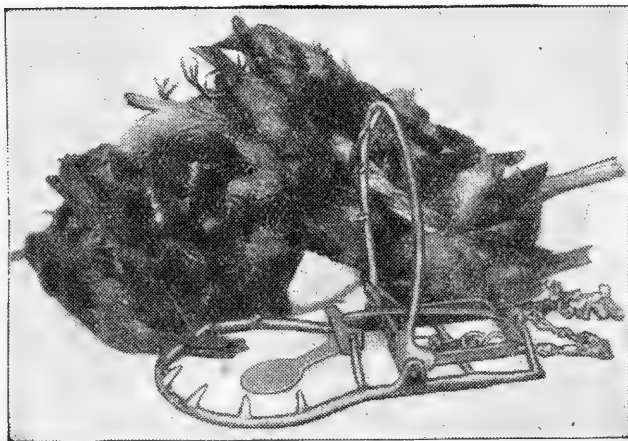
An old, successful and experienced trapper designed this valuable sportsmen's device to smoke out and drive animals from their dens. Letters from trappers indicate that they certainly appreciate this smoker. "It fills one of their long felt wants."

"ALLIGATOR" GAME TRAP

This trap catches animals by the neck or body instead of the feet, killing them instantly without injuring the pelt. A humane feature that is very commendable; **besides it saves every fur for the trapper.** It is the only trap ever constructed with a double trip action, a bait trigger and a foot

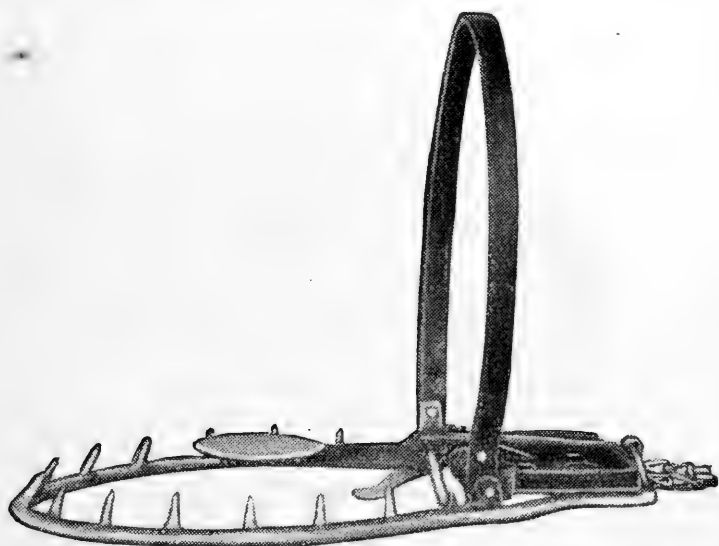


The "Alligator" and Tree Trap with Double Jaws.



Caught this Pile of Birds.

pedal trip, the very acme of the trap-maker's art. It can be set on land or in water at entrance to dens, in runways, etc., with or without bait. An ideal trap for saving furs of muskrat, mink, skunk and the smaller fur-bearing animals. There's no escape, **the trapper gets every pelt**. It is an excellent tree



The "Alligator" Game Trap.

trap for taking marten in the far north, where deep snows occur. The upper jaw forms a support for covering to protect the bait from snow, birds, etc.

It is especially serviceable in catching muskrat under the ice in winter, as it can be baited and set on bottom of lakes or streams where they search for food. It can also be employed in this manner in taking fish.

No one will understand the above description better or appreciate the merits of this trap more than the trapper who has run his leg off on a long trap line to find a lot of animals' toes in his traps.

SPORTSMEN AND TRAPPERS TAXIDERMY OR BACKWOODS TAXIDERMY

With a slight knowledge of taxidermy, the hunter can prepare and preserve hard earned trophies of the chase. The following tools and materials are all that are absolutely needed:

A heavy and light scalpel, or good pocket knife, scissors, needles and thread, cotton wadding, or any soft material if not obtainable; arsenic, alum, saltpetre, carbolic acid, paper for wrappers, and a little bran, meal or fine sawdust to use when skinning.

To Make a Bird Into a Skin—Lay the bird on its back and make a longitudinal cut from the breast bone to the vent. Push the body away from the skin with the knife, holding the skin firmly between the fingers and thumb of the left hand, and avoid cutting as much as possible. When the skin has been removed far enough to expose the shins, unjoint them at the knee, and cut through the flesh until the skin is laid bare. Skin down to the vent and cut off the extremity of the body which holds the tail feathers, and remove the skin to the wings, unjointing them and skinning to below the eyes. Cut the neck off close to the head, and remove the triangular, lower part of the skull, and the brains. Take out the eyes, and cut away all superfluous flesh from the skull, leg, and wing bones and unjoint the main bone of the wing from the double bones or forearm.

(In skinning large birds, break the wings close to the body at the commencement, as it will facilitate the handling and skinning.)

Pass a thread through the wing bones and draw them nearly together, tying them in position. Cram the eye holes full of cotton, wrap the leg bones with the same, and draw them back in natural position. Dust the whole flesh side of the skin freely with dry arsenic, and return the skin. Should the neck become stretched, and difficult to return, soap it, and it will slip over the head easily. Smooth the plumage, fill out the body, sew up the skin, cross the legs and tie them, and wrap the skin closely in sheet cotton,

or thin paper. A skin thus prepared will keep for fifty years or more, and can be naturally mounted at any time.

Mounting Birds with Closed Wings—Lay the specimen on its back and fill the throat with cotton to keep the saliva from soiling the plumage. If the bird is a large one, such as a hawk, owl, raven, gull, etc., it should have the nostrils crowded full of cotton to prevent similar disastrous effects. If a bird is bloody, wash the soiled parts in cold water and dry the feathers as much as possible with a dry rag or sponge, and cover them with calcined plaster, which can be had in any paint store, rubbing it lightly into the plumage until the feathers are dry and assume their natural appearance. To remove the plaster from the feathers beat the bird vigorously with the wing of a bird or fowl. When cleaned, lay the bird on its back and make a longitudinal cut from the breast bone to the vent. Push the body away from the skin with a scalpel, holding the latter firmly between the fingers and thumb of the left hand, and avoid cutting as much as possible. When the skin has been removed far enough to expose the shins, unjoint them at the knee, and cut through the fleshy part of the knee until the skin is laid bare. Skin down to the vent and cut off the extremity of the body which holds the tail feathers, and remove the skin to the wings. Unjoint the wings and skin to below the eyes. Cut the neck off close to the skull and remove the under part of the skull, and from the hole thus made take out the brains. Remove the eyes and all superfluous flesh from the skull, leg and wing bones, and sever the main bone of the wing from the double bones or fore-arm. In skinning large birds, breaking the wings close to the body before removing it will facilitate the skinning. Roll up a small ball of tow and crowd it tightly into the skull. Point a piece of wire at both ends by filing, and twist the tow around it the length and size of the natural neck, commencing an inch or two inches from one end, according to the size of the bird to be mounted. Pass the short end of the wire up through the tow in the head and occipital bone (hind part of skull), and clinch it firmly by repassing the end of the wire through the fore part of the skull, and fasten it through the eye hole with a pair of pliers. Fill the eyes out to nearly their natural size with soft putty, and dust the

whole fleshy side of the skin with dry arsenic, best applied with the hind feet of a rabbit or hare. Between the wings, and on the shoulders of the bird, are two yellowish lines, where the feathers are inclined to protrude through the skin. These lines should be caught up with a needle and drawn nearly together and tied in position. In a skin of a bird of the size of a red-tailed hawk, they should be (when tied) an inch and a half apart. Other bird skins should be drawn up in proportion to their size. Return the leg bones in position, and also the skin, by passing the head through the neck. Pick out the eye lids in their usual form with a needle or pincers, and arrange the plumage smoothly. Make a body **the size of the original one** by rolling up a bunch of excelsior, or sea grass, and winding it into form with twine or thread. Pass the neck wire through the body lengthwise, pull the skin carefully over the body, and clinch the protruding neck wire firmly. Never use soft bodies, as they will not hold wire sufficiently tight to keep a bird in position. Wire the legs by putting pointed wires through them from the center of the feet. Fasten the leg bones to the wires by wrapping them with tow, **making** the legs a little smaller than they naturally are, and slip the wire further through the legs and let them pass obliquely through the body from the side to the fore breast. Clinch the leg wires firmly into the body, straighten the legs parallel with the sides of the body, and sew up the hole in the skin. Smooth down the plumage, bend in any natural position, and mount on a stand. Fill the throat out slightly with cotton or tow, and apply a little mucilage to the inside of the eye lids. Press the eyes tightly in position, and pick out the eye lids over the eyes as required with the point of a needle. Fasten the bill together by passing a needle and thread through the nostrils and base of under mandible and tie in position. To wire the tail is one of the most delicate tasks for the tyro, and should be done as follows: Pass a long pointed piece of small wire through each tail feather, at the flat part of the quill near the body, and spread the tail as desired. Another large wire should be run through the fleshy part of the skin (at the base of the tail) into the body from the under side of the tail, thus fastening it in any position wanted. Fasten the wings by sticking a sharp

piece of wire through the shoulder of the wing into the body. Stick small pieces of wire in different parts of the body, and wind the bird tightly with fine thread, thus holding the plumage in position until dry. The plumage may be made to lie smoother by touching the rough places with a feather wet in turpentine. When collecting, one should note the color of the eyes, legs, cere, gular sack, etc., of birds when first killed, as it may be naturally reproduced by paint when the birds are mounted and dry.

To Preserve Birds Temporarily—Birds can be preserved for a few days during hot weather as follows: If a large bird is killed, first swab out the blood from the throat if necessary, and distribute powdered alum and saltpetre (one part saltpetre, six parts alum) the entire length of the throat, and push some of it into the crop with a stick; rub a little of the preservative into and around the eyes externally; draw the entrails from the specimen through a small hole, made longitudinally into the vent, and prime the inside of the bird with the powder; put a small piece of cotton down the throat, and cram the nostrils full of the same material, to prevent the saliva and blood from coming out on to the plumage. Carbolic acid is also a good disinfectant and preservative. Take a small bottle of water and put a teaspoonful of acid into it, and apply the mixture to the most perishable parts of a specimen in the same manner as directed to use the saltpetre and alum. Pieces of cotton or tow, wet with the acid and water, should be placed in the vent and throat of the bird. Should one wish to keep any hard feathered birds, such as loons, grebes, auks, guillemots, gulls, ducks, etc., they should be drawn and thrown into a pickle of saltpetre and alum, and any good taxidermist can mount and clean them when desired.

To Prepare a Buck's Head—To preserve a buck's head, make a cut across the head from the middle of one horn across the skull to the middle of the other antler; then make a cut from the middle of the incision made down the back of the neck to the shoulders; cut the skin around and a little below the neck until it is free from the fore shoulders, and continue to skin the neck up to the base of the antlers; cut the skin carefully away from around the horns, and skin down over the muzzle; skin the ears part way down,

trim away the flesh from the skin, and rub the whole fleshy side of it with the powdered alum and saltpetre, and if no other preservative is at hand use salt. Turn the fleshy side of the pelt to the open air, and dry as soon as possible. The skin will shrivel up to the dimensions of an old boot leg, which it resembles in shape, but nevertheless it will be in good condition. Chop away the part of the skull to which the horns are attached, enlarge the hole in the occipital bone, remove the brains, dust what remains of the skull with any preservative, and hang the horns in a convenient crotch of a tree until the camp is deserted.

Never cut a deer skin down the front of the neck, unless you want an ugly looking seam to mar the beauty of a head. Should a deer be wounded or killed, it is not necessary to cut his head nearly off to bleed him, and if a deer is shot through the lungs or near the heart, it does not need bleeding, as the blood will settle in the thorax and can easily be turned out when the animal is dressed. What looks worse than a deer with his head nearly cut off, and its coat covered with blood, which will become half putrid in a few days in mild weather, unless it is washed off from the hair when fresh? Never wash out a deer after dressing it unless you are desirous of spoiling your venison. When saving saddles, let them cool and stiffen before folding the skin over them. So do not mangle your game and spoil your skins and meat by slashing animals to pieces with a huge butcher knife.

Skinning Small Quadrupeds—Begin by making a longitudinal incision between the hind legs, extending quite back to the vent, the hair having been carefully parted so that it may not be cut. Do not cut into the abdominal cavity. The skin can now be separated from the flesh and turned back as far as the thigh, which is severed at the joint. When this is done on both sides, the gut should be drawn out and severed at a short distance from the vent. The tail should also be disjointed at the root. This being done, the skin can be loosened around the body until the fore-legs are reached, when they also should be dissevered. The skinning now proceeds along the neck until the skull is reached. Here considerable care is necessary to remove the skin without damage to the ears, eyelids and lips. The

skin is left attached to the skull; when the operation has proceeded far enough to expose the muscles of the jaws, the skin must be separated from the body at the first joint of the neck. The tongue, eyes and muscles, remaining attached to the head, are now to be carefully removed, and the brain taken out from an opening in the back of the skull, cut through for that purpose. To make this opening, amateurs can use a small gimlet or bit with very small animals, and a large one as circumstances may demand. The legs are now to be skinned out quite down to the claws, which completes the operation of skinning. During the entire process, all fluids escaping must be immediately soaked up with cotton. As soon as the skin is removed, it should be thoroughly rubbed with arsenical soap, not omitting the inside of the skull and mouth cavities.

Insect Specimens—To preserve insects; quarter of an ounce of corrosive sublimate in one ounce of water, and add three ounces of spirits of wine. Steep insects in this, then dry; and especially if spider specimens be treated this way, they will be found to be pliable.

Bird Lime—To make it, boil down linseed oil of the best quality until it becomes thick and glutinous. It should be boiled in an earthen pot in the open air, for about two or three hours. It is very essential that an earthen vessel should be used, as an iron one heats and the oil takes fire when boiling, and in such a case is useless as bird lime. A pot should be used with a tight fitting cover, to prevent the fire entering inside it. When prepared set the oil away in tin boxes with tight fitting covers, until it is to be used. Prepared lime made of pitch and oil and sold by some dealers is worthless.

To Use It—Select some small dry sticks, about eight inches long and as thick as a straw; sharpen one end of them to a flat thin edge, so they can be stuck into a cut in stake; take a large stick or stake and drive it in the ground; make cuts in its sides suitable to receive the flat ends of the stick; take two of the small sticks and dip them in the lime; when covered, hold one in each hand and roll them between your thumbs and fingers with their sides touching, thus equally distributing the lime; insert their ends loosely into the notches in the ground, and place

a "call bird" in a conspicuous place near the stake; when the birds alight in the sticks they pull loose from the main stick, and when flying away the wings come in contact with the lime, and are pinioned to the bird's sides. It does not hold them by the feet, as is generally supposed.

To Tan Skins of Animals with the Fur On—1. Put them into a pickle of alum and saltpetre until they become like leather; then dress the flesh sides, dry them slowly, and rub them with a little butter, and dry them by rubbing or treading them out in veneer sawdust.

2. Take soft water, about ten gallons, a half bushel wheat bran, seven pounds of salt, two and a half pounds of sulphuric acid. Dissolve all together and put the skins in the solution and allow them to remain twelve hours; take them out and clean them well, and again immerse twelve hours, or longer, if necessary. The skins may then be taken out, well washed and dried. They can be beaten soft, is desired.

3. Take equal parts salt, alum and Glauber salts, and half a pint saltpetre; pulverize and mix. Handle the skins and rub the mixture in well three or four times a day, the oftener the better. If there is not sufficient moisture in the skin to dissolve the salts put a little water into the latter. We are assured that no moth will ever attack furs, the pelt of which have been thus prepared.

4. Mix the proportion of six pounds of alum, and three of salt. Dissolve both in about a gallon of warm water. Use when cool. Place skins not too tightly packed in a barrel or keg, and pour in mixture. Skins without injury to hair may be kept any length of time in this way, and all in good order at any time to stuff.

5. Take two parts of saltpetre and one of alum, pulverize them well together; spread the skin carefully, fur side down, before it has dried; apply the mixtures evenly, being careful to touch every part in sufficient quantity to thoroughly wet the surface after it dissolves; double the flesh side and roll it up closely; put it in a cool place, out of the way of the frost, and let it remain three or four days or more according to thickness; then unroll, and when it gets nearly dry, with a dull knife remove the fat that may

adhere in spots, and a little rubbing makes it pliable and fit for use.

6. Glauber salts, two pounds; rock salt, one pound, alum, two pounds; all to be dissolved in boiling water; leave skins in about ten days, take them out occasionally for a little while during that time; cut the edge of the skin to see if the tanning has gone through; then take them in the hand and beat them over a round stick or block until they are soft. They are to be beaten with the hair side in.

Indian Tanned Skins—The skin is stretched either on the ground or on poles, and all fat or flesh removed. When well dried it is washed in soap and water to cleanse the fur; the brains of any animal are then taken and mashed into a paste with hot water, and this paste is thoroughly rubbed into the flesh side, and the skin hung out to dry. When dry it is scraped, and exposed to the dew for one night, and next morning rubbed and pulled until soft.

Buckskins are made by rubbing off the hair with a horse-rib, while the skin is fresh, or after soaking in a weak lye; then dressing with brains, and staining a reddish color in a decoction of Wasatchie bark. Alum and salt are very good, but alum is rather scarce in the chapparal, as also are doors and boards. Some stretch skins on the ground.

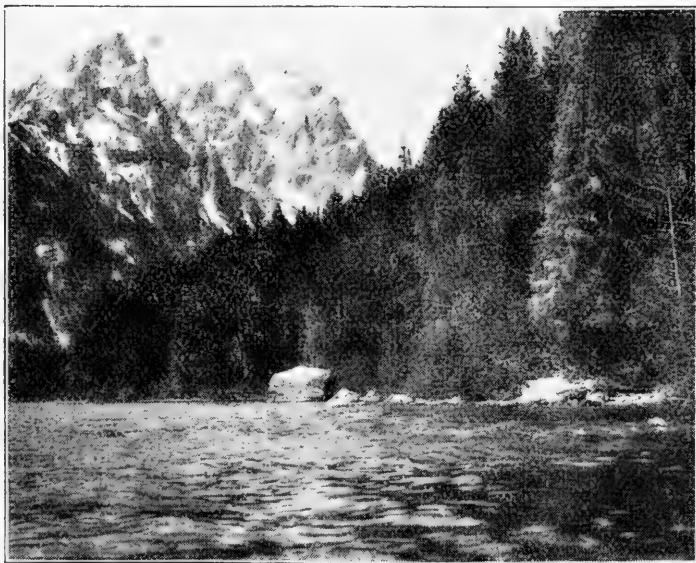
Care should be taken, by the way, not to use too much salt, as it causes the skin afterward to absorb moisture too readily. Smoking a skin is done by first dressing with brains, sewing it up into a funnel-shape, and suspending over a slow fire of buffalo chips, or dry prickly pear, built in a hole in the ground. The tips of the funnel being pinned down close around the hole; a clear, calm day, is selected, and the smoking requires about two hours. It gives a velvet-like finish, and the skin never shrinks or gets stiff from wetting, but washes like cloth.

To Keep Moths from Skins—Dissolve a small piece of corrosive sublimate in alcohol, and brush on; or the best arsenic dissolved in the same manner will answer.

To Preserve Fish for Specimens—Specimens, which, after being taken, should be wrapped in a damp cloth or moss until opportunity offered for placing them in weak spirits of whiskey or alcohol, when they should be allowed to soak

until the spirit has thoroughly permeated the fish, which requires several days, more or less, the length of time required being governed considerably by the weather. They should then be carefully spread on a platter and covered with alcohol until the fish is hardened, when it can be placed in the jar.

To Preserve Fish Skins—Skin your fish carefully, but do not be particular as to leaving a little meat on. Spread the skins in layers and sprinkle with salt and alum; or make a pickle in a small keg of a weak solution of carbolic acid; any remaining flesh can be scraped off afterwards, and the fish set up by a taxidermist. Many of the most delicate fishes with large scales will not stand the above treatment, to say nothing of mounting them afterward.



Nature Most Beautiful.

TAKING OFF THE HIDES

Small animals should be cased, or opened, by peeling the skin off from the hind quarters. Make a cut from front to hind legs and strip it off like skinning a rabbit. Cut off around the legs and remove the skin clean from the bones, with the knife keeping all fat and flesh on the body proper. If slippery use a dry rag around the bony parts, or a split stick. Tie a loop cord or wire to fasten the hind legs upon so as to hold secure, fastening it to the hut or a tree. Skin clear back to nose, cutting loose eyes and ear cartilage. To skin them open cut from breast to the lower jaw—be careful to cut in a straight line—follow with the knife on the inside of fore and hind legs clear to the toes and claws, which should be left on all fur pelts, peeling the hide off, using the knife to keep it free from fat or flesh as much as possible. Do not draw the skin too far away from the body—just enough to handle the knife freely—to bend it clear back one is apt to cut the skin. Let the knife blade point toward the carcass or body not toward the skin, **but away from it**, so as to avoid cutting the skin or gashing it. The cleaner the skin is taken off the better it is, and the least fleshing will have to be done. With care and practice one will soon learn the knack. I have often skinned as high as two or three hundred animals in a day and on sealing voyages (South Shetland seal) have averaged that many for days. On one voyage we captured as high as 5,000 seals in one season. The price we received for them in the **London market averaging \$20 each**. In these cases no fleshing was necessary so cleanly were they removed before salting and packing. All these were cased open.

“BUZZACOTT.”

Head Sealer.

Record—Voyage of the sealing Schooners fleet of Williams & Haven, New London, Conn.



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BY FUNSTEN BROS. & CO. ST. LOUIS

34 SILVER FOXES VALUED AT \$21,000⁰⁰

STRETCHING AND CURING SMALL SKINS.

The market value of a skin is greatly affected by the care taken in removing it from the animal, and in drying it. The common way is to tack the skin to the barn door and let it remain stretched until quite dry. The trapper in the woods having no such convenience as the barn door at hand, is obliged to resort to other methods. One plan is to dry the skin on a hoop. A skin to be dried in this manner must not be ripped down the belly, but it is cut from the lower jaw of the animal to just below the forelegs; the lips, eyes, and ears being cut around, the skin is stripped off, leaving the fur side inward. The hoop consists of a branch of hickory or other elastic wood, an inch through at the butt. This is bent and pushed into the skin, which is drawn tight, and fastened in place by notches in the bow, drawing the skin of the lip into these notches. A much neater way, and one generally preferred, is to use stretchers of thin wood. As these have to be carried by the trapper, they are made of light wood and very thin. They are three-sixteenths of an inch thick, twenty inches long, six inches wide at the larger end, and slightly tapering. They are rounded to a blunt point at the lower end, and the edges chamfered. The skin is drawn over the board, and secured with tacks. Skins stretched by either of these methods should not be dried in the sun nor by a fire, but in a cool place where they will be sheltered from the rain. No salt or other preservative is used upon skins intended for the market.

HINTS AND POINTERS TO THE TRAPPER

Lookout for Damaged Skins

Many trappers ship pelts unclean, over or under stretched, tainted, dirty, not cleaned of excess flesh and fat, tail bones, etc., badly skinned, slashed or cut, dried out of shape, trapped out of season, taken off the wrong way and the like, which decreases them largely in value and in many

cases rendering them valueless, then expecting full prices and calling dealers robbers because they don't get them. Don't kill before time. Don't dry in the sun or heat. Don't overstretch or get out of the natural shape. All these items decrease the value of your shipments. Small animals, such as mink, marten, skunk, civet, raccoon, opossum, muskrat, and the like, should be cased, while those of the larger should be skinned open, such as the wolf, beaver, lynx, cougar, wolverine, etc., etc.

DRESSING AND TANNING SKINS AND FURS

There are various ways of dressing skins, but some are easier and better than others. Several of the recipes given below have been advertised and hawked about the country at five dollars each.

We will commence with what is called oil-dressing, and, to begin at the beginning, the directions would be, "first catch your deer." As soon as the hide is taken off from the deer's back it should be grained; to do this, provide yourself with a beam eight inches through, and six feet long; put two legs in one end, and let the other rest on the ground, so that it will stand at a steep slant. The beam must be of hard wood, shaved smooth, without a ridge in it.

Provide yourself with a knife. One made for the purpose is best, but you may make a very good one by taking an old shaving knife and grinding it square across the edge, until it has a face about a sixteenth of an inch across. Then whet the corners smooth, so that they will not cut the skin. A piece of a scythe, with a handle at each end, makes a good fleshing knife.

Now sit down, with the highest end of the beam against your belly, and lay on the skin, hair side down, and proceed to take off all the flesh and fat, and every unequal substance before you turn the hair side up. Then commence to grain, with the neck of the skin next to you, and shove against the hair, having a firm hold of the knife,

and shoving with some strength, when off will go a streak of the grain, and so proceed until it is all off. This is the way to grain a green hide just taken from the animal.

To grain a dry hide, first put it in a tub or barrel of warm water, and let it lie for twenty-four hours, and then add to each half barrel of water a pint of good slaked lime, and let it stand twenty-four hours more; then proceed as with a fresh skin.

When the work is properly done, the skin will be as clear as glass, with no streak of grain or other uneven substance left; unless it is in this condition, it will not dress well.

Now, in order to dress one buck skin, take eight quarts of fresh rain water and warm it, and put in one pint of soft soap. Put in the skin while the liquid is warm, and work it with the hands, or punch it with a stick, until the soapsuds is quite worked into it, say twenty-four hours. Then take it out and pass it between two sticks, or pass it through a good wringing machine. Then pull it until it is dry, in the hot sun, or before a hot fire. Next stretch it out to its full size, and spread on some soft grease, or any animal oil, until it is well oiled through. Then heat up the suds again, and apply half as much more soap, and put in the skin again and work it well for a time, and let it lie twenty-four hours longer. Then take it out and pull it dry, as before. For all doe skins, and for yearling bucks, this will be enough, but old buck skins must go in once more, and when pulled dry again they will be as soft as velvet.

The best grease to use is butter, which is the greatest softener in the world, and a less quantity will answer than of any other grease.

When the skin is dressed and pulled dry, you may apply ochre to make it yellow, or hang it up in a smoke-house and smoke it with a smudge of rotten water elm, which will make it a beautiful reddish yellow.

Another process is to let the skin lie in clear water until the hair will slip off, and then grain it on the beam. This is a very good way. I have practiced it, and found the leather as tough as that of the green hide.

Take the brains out of the head of a deer, or of a hog, tie them up in a cloth, and put them into a gallon of

water, and boil for an hour; then squeeze the cloth so as to press through as much as you can; let it stand until you can barely hold your hand in it without scalding; then put in the grained skin, working it continually for two or three minutes; then take it out, wring it, and pull it dry. If not soft enough, heat up and put in again; then work it and dry it as before. No doubt it will be done by this time, but if it is still a little hard, apply a small amount of butter, and work it in thoroughly, and then smoke, as before directed. This is the Indian dressing. There is no doubt that the first recipe—the oil dressing—is the best of all.

Tanning.—The first thing to be done preparatory to tanning a hide or skin is to soak it, as no hide can be tanned unless it has been soaked and properly broken on a fleshing beam. Soak in soft water, and, unless the hides have been salted, add a little salt to the water. Green hides should remain in until thoroughly well soaked, say from ten to twelve hours, according to thickness; dry hides from two to six days. All hard or unbroken spots must be softened after soaking. To remove the hair or wool, immerse the hide or skin in a liquor composed of ten gallons of cold, soft water, eight quarts of slaked lime, and eight quarts of hard wood ashes. Let it soak from two to six days, or until the hair or wool slips off easily.

If it is desired to keep the wool or hair clean, instead of using the liquor take equal parts of slaked lime and hard wood ashes, and make into a thin paste, with water. Spread this on the flesh side, and then roll up the skin, flesh side in, and place it in a tub or barrel, barely covering it with water. Let it soak from one to ten days, or until the hair or wool can be easily removed; then take the hides from the soak, and scrape off the hair and flesh with a fleshing knife.

The hides, by being soaked in the lime liquor, are raised too much to be submitted to the tanning liquor. They must first be reduced to their original thickness, by being entirely freed from the lime. This is done by what is termed "bating."

A bate is made of ten gallons of cold, soft water, one-half bushel of wheat bran, and a quarter of a pound of sulphuric acid. It should be prepared a day or two before

using, in order that the bran may ferment. By using lukewarm instead of cold water, the process will be hastened. Put the hide into this bate, and let it remain until it is reduced to its natural thickness and is as soft as a green hide. Then remove it and rinse it in soft water, and work it out, at least once, over the fleshing beam. For a thick hide, a second rinsing and working will be necessary.

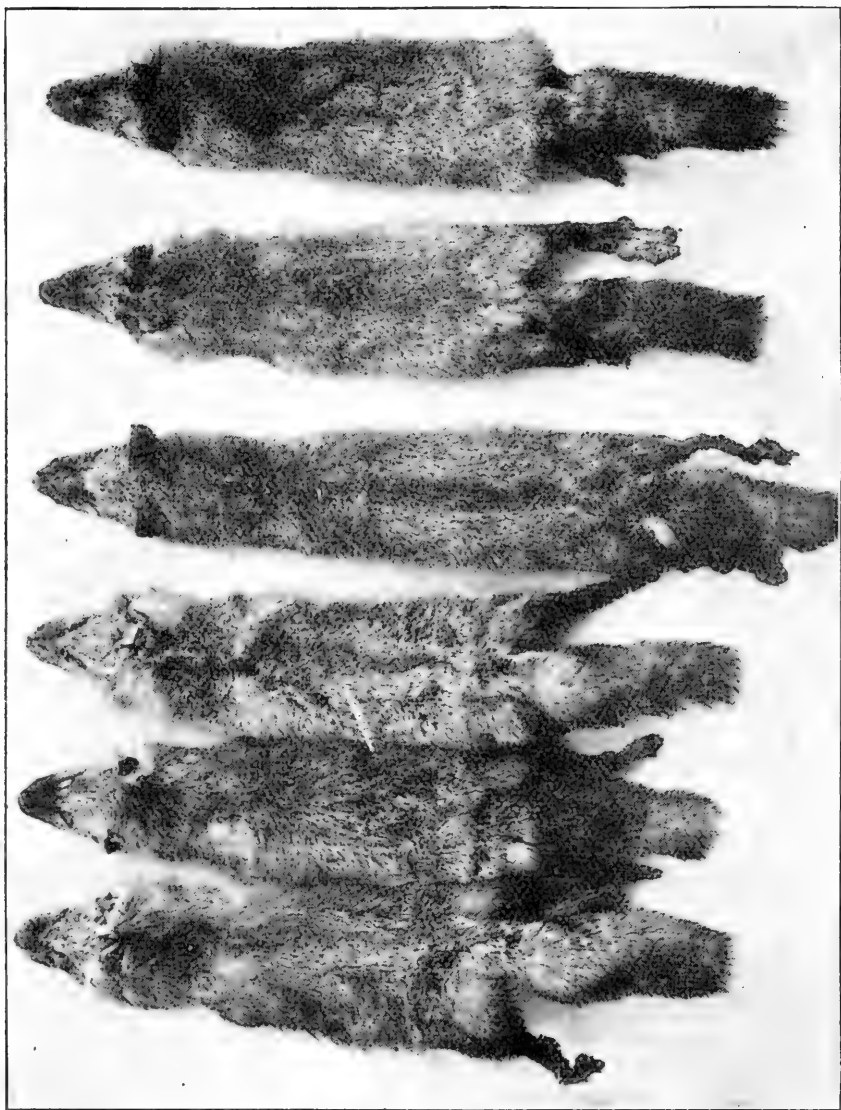
Tanning Liquor.—For light hides, add one-half bushel of wheat bran to ten gallons of soft, warm water, stirring it in. Let it stand in a warm room until it ferments, then add seven pounds of salt, and stir it until it dissolves, then add slowly, and stir in, two and a half pounds of sulphuric acid. Into this liquor put the hide, and handle it until it is perfectly saturated.

This tan will impart no color to the leather, but will act as a mordant for setting a variety of bark or vegetable colors. This tan liquor, when properly prepared, has a sour, pungent taste, sharper than the keenest vinegar, but is not so strong as to injure the tongue or hands. This is the test for the strength of the liquor. If it becomes much reduced below this test, while the hides are in it, it must be strengthened. To do this, remove the hides; then skim off the bran, which is now worthless, and add to the old liquor fermented bran, salt and acid, as before. Light hides should remain in the tan liquor from four to twelve hours. Then rinse them in soft water, two or three times, pushing out all the tan from the fur or hair. All tanned skins should be thoroughly rinsed before applying the liquid stuffing, which is composed in the following manner:

Take one-third leached lye and two-thirds tanner's or neat's foot oil, beat together, and apply with a stiff brush. Give calf skins two coats, furs one light coat, and deer skins two coats, one on each side. Hang them in the shade to dry. When half dry, take them on the beam over some yielding substance, and by pushing the edge of the flesh knife stoutly over the leather in all directions, it will become soft and pliable.

In treating a calf skin, when the liquid is nearly dried in, apply a thorough coat of water-proof stuffing.

All hides and skins when drying are like full cloth. When wet they contract or pull up, and have to be



Fine Furs, the Right and Wrong Methods of Dressing Them.

stretched. To do this, take the hide after the liquid stuffing is dried in, dampen it, and place it on the fleshing beam over some yielding substance like a sheep skin. Then use the flesh knife (a circular knife, like the cook's chopping knife). By pushing the edge stoutly in all directions over the leather, it will become stretched, and be made fit for the various uses to which it is to be put.

The following is a simple way to dress deer skins. First have them grained, as already directed. Then, into a two-gallon stone pot, put two quarts of rain water, one ounce sulphuric acid and one gill of salt.

Put in the hide, work it well for two or three minutes, wring it out, pull it dry, and smoke it.

Coloring Hides

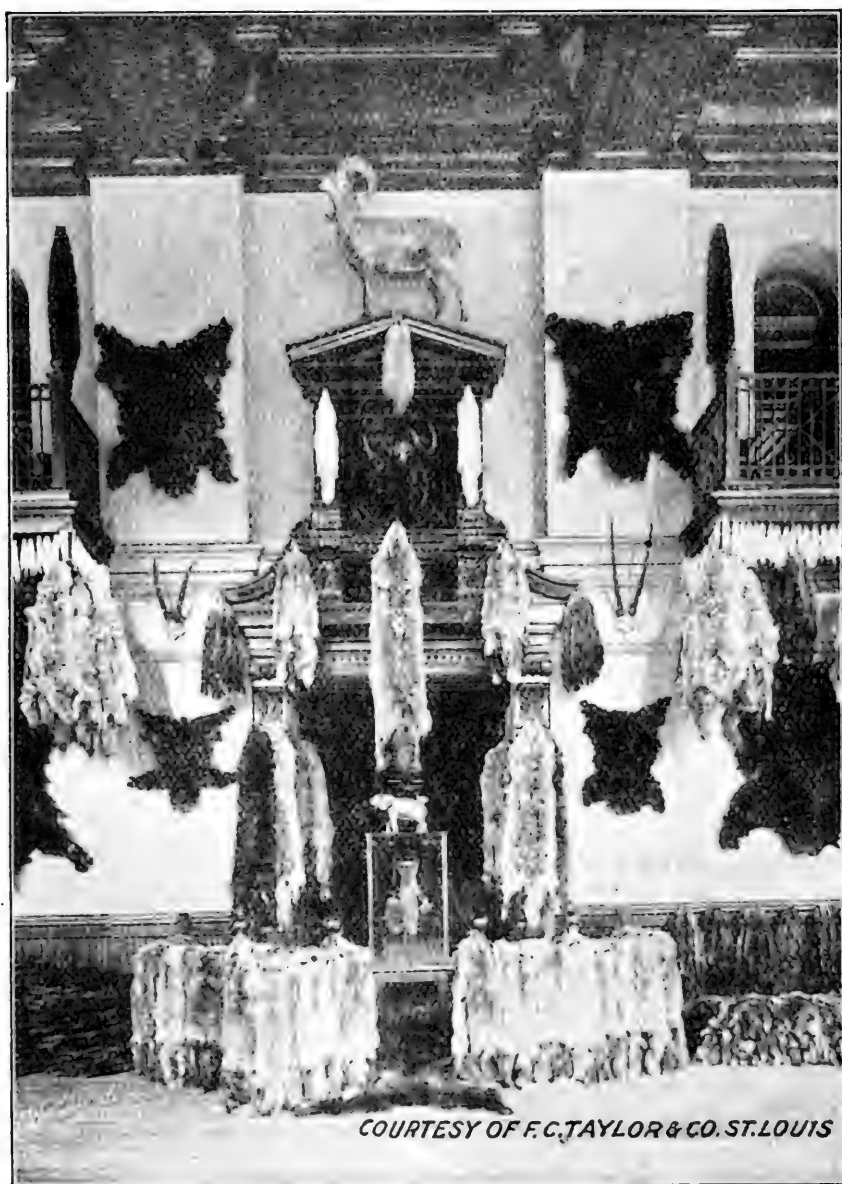
Black.—Use logwood clear; dry, and then use copperas water to make it black. Don't use too much copperas.

Drab.—Pulverize blue clay with soft soap, add blue vitriol, or extract of logwood, to shade the color as you wish.

Dark Brown.—Seven pounds of oak bark, six pounds of young fustic, one pound of logwood. Strike in with strong alum water.

To Buff Buckskin.—Take five parts of dry whiting and two parts of yellow ochre, and mix them with water to a stiff paste. Mould into balls, and lay by to dry. When the dressed skin is dry rub the ball over the surface, and scour the powder in, and nap the leather by going over it with sand paper, folded over a small piece of half-round wood; or rub the leather down with pumice stone.

Buff or Dark Brown.—Take equal parts of pulverized, unslaked lime, and litharge, and mix to a thin paste with water; apply it with a brush. One or two coats will give a light buff or buckskin color, which every additional coat will deepen. By adding ammonia and nitrate of silver, a beautiful black color is produced. This color may be so applied as to give a leopard skin appearance, and in the



COURTESY OF F.C. TAYLOR & CO. ST. LOUIS

A Prize Exhibit of Fine Furs.

hands of an ingenious person, a beautiful effect can be produced.

Another.—One ounce of crystalized nitrate of silver, eight ounces carbonate ammonia, one and a half pints of rain water. Cork tight. Apply to the surface of the fur with a brush. One application will make a brown, and by repeating it often enough the color may be deepened to a black.

To Dress Fox Skins

Commence to skin the fox by ripping down the back of each hind leg until the slits meet at the crotch. Don't rip up the belly, but skin the body whole. Skin the tail by putting a split stick over the bone of the tail, between the hide and the body. Hold it tight, so that it will scrape the bone of the tail, and then pull this out of the hide. Draw the hide over a board, made ready of a width from end to end, and when it is dry slip it off and turn it fur side out; then it is ready to sell.

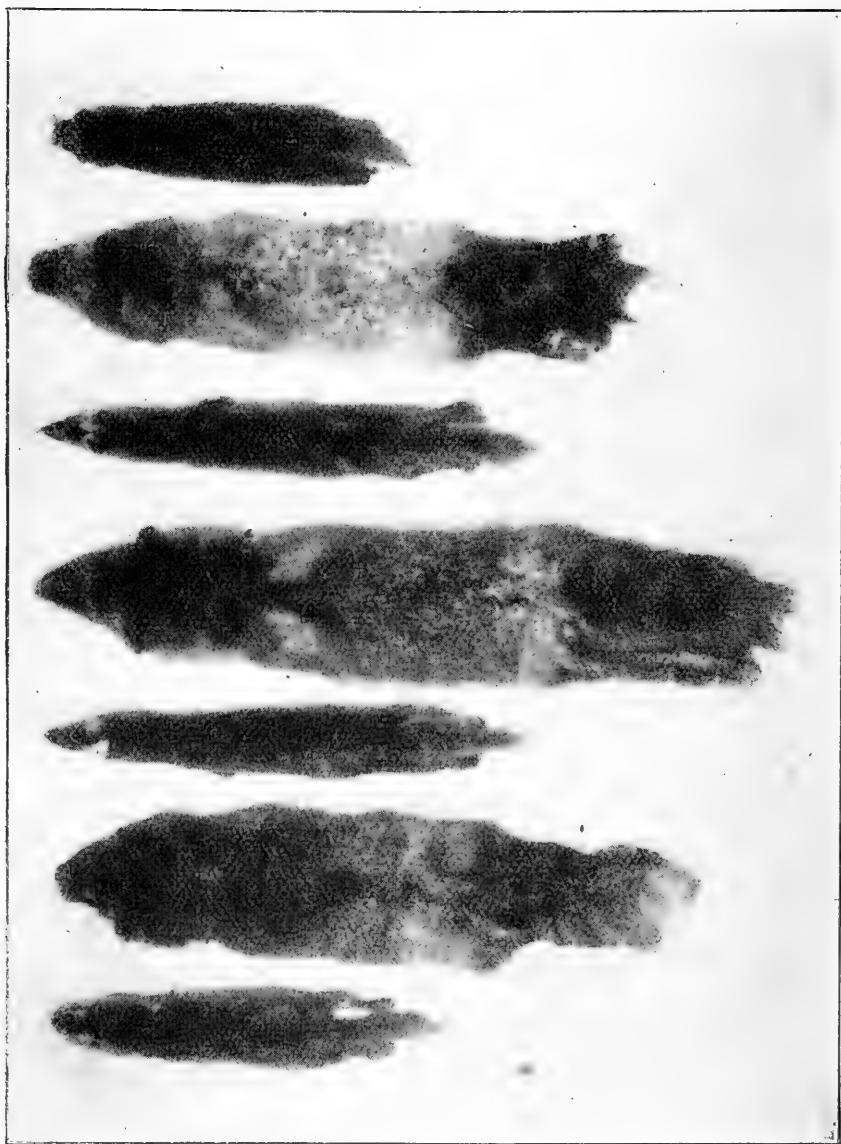
Beaver Skins

Rip the skin as you would that of a sheep. Stretch it to its full size in all directions, and nail it on a board to dry. It may be dressed by a mixture of equal parts of rock salt and alum dissolved in water, with coarse flour stirred in to make it about as thick as cream. Spread this on about half an inch thick, and when dry scrape it off. If this is not enough, put it on a second time.

To make it into furs, pluck out the long hairs.

Otter Skin

Skin him nearly the same as the fox, only that the tail must be ripped up, and when the hide is turned down to the four legs, they must be skinned out carefully. Slip the skin over a board that will not fit it so tightly as to



Silver Fox and Marten Pelts.

injure the fur. Stretch out the tail, and hold it in place by tacking it with small nails around the edges. If it is a real black fellow, that shines like a crow, probably you will get eight or ten dollars for him. It may be dressed in the same manner as a beaver skin.

Mink Skins

The same directions in all respects as for the foregoing save that after the paste gets dry it should be scraped off with the bowl of a spoon, taking care to keep the skin stretched tightly, so that the astringent matter will not shrink it too much.

The skin may be dressed as soft as velvet, and the alum and salt will set the hair securely.

During the warm, summer months the mink is nearly stripped of his fur, the skin is thin, and the butts of the hair stick nearly through, making the pelt black.

The skin is in its prime from mid-winter until about the middle of May.

Muskrat Skins

These skins are very tender, and the flesh is very tough, so that they will not bear fleshing until they have lain for at least six hours in the tan liquor described above for light deer skins. After this it should be fleshed over the flesh side of a sheep skin, with the circular fleshing knife. The fur may be enlivened by being rubbed with a mixture of equal parts of scorched bran and clean white sand.

Raccoon Skins

These should be nailed on a board to dry, and smeared with a paste made of equal parts of alum and salt dissolved in a weak solution of sulphuric acid, say 2 ounces of alum, 2 ounces of salt, 1 drachm of sulphuric acid, 1 pint

of water, and a little wheat bran. When nearly dry, scrape it off with a spoon, and work the skin very soft.

This may be done by rolling up the skin, instead of nailing it on a board; or it may be put in the tan liquor recommended for light deer hides.

Bear Skins

Tan in the same manner in all respects as the Raccoon skins.

MORE ABOUT PREPARING PELTS

Many industrious trappers lose much hard-earned money in carelessly prepared peltries. All pelts should be removed from animals when first captured, except in severe weather in the north, where animals may be kept frozen for weeks without injuring the fur. Skins should be well stretched and cleaned of all loose flesh when green; they should not be scraped too severely, however, as in so doing the fibre is often injured. They must be dried away from the camp fire, in the shade or open air. Pelts dried under a hot sun soon become very hard and dry, and are liable to tear, particularly those from thin-skinned animals, such as the fox, lynx, wild-cat, muskrat, etc. Fatty skins, like those of the bear, raccoon, seal and skunk, can be exposed to the sun without injury; the heat draws the fat to the surface, and it is then easily removed. Alum, salt and saltpetre are often applied to green pelts by amateurs, but it causes shrinkage, and also prevents quick, soft soaking and easy currying when first handled by the tanner.

Furred animals are trapped in cold weather, and no preservatives are necessary in drying the skins. The blood should never be washed from the flesh side of a pelt, as water injures the skin and causes decomposition. The skins of most animals should be drawn over stretchers, with flesh side out, and edges tacked in position. Of the class treated

thus, mention might be made of the otter, fox, fisher, marten, mink and muskrat. The skin of the muskrat should be stretched over a shingle, with sides slanted on thin end, and corners rounded.

The animals mentioned should be skinned as follows: Cut the skin through around the ankles; then place a small, sharp knife in the incisions, and open the skins down the inside of the hind legs to the cauda. This amount of cutting will enable the skin to be pulled over the head of the animal without tearing, and to come off in bag-like shape. The tails are drawn out by placing the fleshy part between two sticks, with a slight notch in each; they will thus be prevented from slipping sideways, and will draw more readily. The tails of most animals need starting at the base with a knife. Tails of the otter and skunk should be split down the under side, and tacked out flat on the stretcher. The feet are generally left on fox skins, and the fur side turned out when they are partially dry. The stretcher for mink and other large skins should be in three pieces, to facilitate removal, as the skins contract and stick tightly.

The skins of several furred animals are removed differently from those described. Those of the bear, panther, wolf, wolverene, lynx, badger, beaver and skunk are skinned flatly, by cutting down the middle of the belly and the inside of the legs. Such skins are stretched and nailed on any flat surface. Very large skins, such as the moose, caribou, elk and deer, are stretched on pegs driven through their sides in the ground. When pelts are stretched and dried, they should be made in bundles, placed in the top of the trapper's cabin, and allowed to remain until spring. Early in the season a mixture of salt, saltpetre and alum is used for the largest skins.



Wolves on the Trail of Game.

HUNTING AND TRAPPING THE WOLF

There are several varieties of wolves in the United States. The prairie wolf, of two or three different kinds, is but small, and is easily trapped or shot. He is not so destructive among sheep as the large gray wolf of the timbered country, and it is about these that I shall have the most to say. They are confined to no particular loca-



Wolf.

tion, but travel about from one place to another. Still they have their particular routes, as from one swamp to another, and where their course brings them near a settlement, they sally forth at night to steal a sheep, if these are kept out and are not penned. Killing sheep is a business they understand, and they will cut the throat of one about as slick as a knife can do it. They are greedy creatures, and always want to kill the whole flock. I have known as many as thirty to be killed in a single night by one wolf—nothing done but to cut their throats. When the she-wolf can find an old bear's den, she will take possession of it to have her puppies, usually about the last of April or the first of May. These follow her all the summer and fall, when they start off on their own hook to see what they can catch to eat. When deer are plenty, it seems as though they could catch one whenever they please. I have often seen how they operated, one or more running directly on the track, and one on each side. After

a short run, they would close in, and the venison was sure to be taken. There seemed to be no possibility of escape. In fact, they are great hunters; some will hide in a run-way, while the others drive the deer along. I have often heard the gang, belonging to an old slut with an old dog in company, set up their how-de-low, from the blow of a conch shell to the barking of a puppy dog, screech and scream, all at once—utter confusion.

It is no sign whatever that they have caught anything because they make such a noise, although when one wolf catches game or finds a deer or any such thing, he goes off a short distance and sets up a howl that makes the welkin ring; and when joined by his comrades, they go together and feast on their booty. While the wolf is calling the others together, should you remove the bait or body, when the pack return with the one that caught it, and they find nothing there, the unfortunate beast pays with his life the penalty of his false alarm. Wolves often catch deer on ice, and while they have gone to call the pack, men have often removed the body, and then from a safe distance watched the tragedy I have spoken of.

To my mind the wolf is the shyest creature I ever tried to get a shot at, and to catch one in a trap you must use the same caution that I recommended in trapping for foxes. Never touch the trap with your bare hands, unless you are going to set it under water.

The best way to trap wolves is to take the carcass of a dead horse or other animal and draws it to a spring-hole, and then set your trap exactly as recommended for bears.

Wolves may be poisoned by the wholesale. Where there are wolves in the country, they have, as I said before, regular routes over which they travel several times during the winter. By close observation you can learn about when they will be along—within a week or so, at any rate. Now hunt up an old horse that is about to die, lead him to the spot that you have selected, kill him, and skin him. Take pieces of lard or suet about the size of a hazel nut, and slices of tough flesh from the horse large enough to thoroughly enclose the lard. Spread the lard a little on one side of the flesh, and sprinkle upon it as much strychnine crystal as can be taken up on the point of

a knife blade. Mix this with the lard; then roll up the meat neatly and tie it slightly, so that the strychnine cannot be exposed on the surface, and lay it down on the carcass of the horse. Put about a dozen of these baits exactly where you can find them at any time. When you come again to examine the place, as many pieces as are gone, just as many dead wolves you may expect to find within two or three rods of the spot. I have known a whole gang to be killed in this way in one night.

Foxes may be killed in a similar manner, only very much less strychnine is necessary. When the wolf, the fox, or any other animal is killed with strychnine the hide should be immediately tarred with alum and salt, as described in the chapter on dressing skins. If this is delayed the hair and fur will come out and spoil the looks of the skin. If wolves kill a calf, or any other creature, take the body to some place out of the reach of domestic animals and put poison about it as above directed, and you will be sure to make them keel over.

You can so scent your boot soles with a mixture made of the oil of rhodium, oil of fenugreek, oil of cummin, and flour of sweet fennel, as to make the wolf follow your track or trail. By going far into the wilderness and traveling among the swamps, you can fetch the wolves into your neighborhood, but they are not pleasant neighbors to have and raise Cain by hanging about a line of traps and scaring or driving everything away.

Poisoning Wolves

Many wolves are killed by poisoning, and more would be so killed if the methods followed were less crude. Strychnine is generally used with nothing to disguise its intense bitterness, the powder being either inserted in bits of meat or fat or merely spread on a fresh carcass. In most cases the wolf gets a taste of the bitter drug and rejects it, and if the dose is swallowed it may be too small to be fatal or so large as to act as an emetic. An old and experienced

wolf will rarely touch bait poisoned in the ordinary way, but sometimes a whole family of young may be killed at a carcass. Usually when wolves are poisoned they go so far before they die that if found at all it is not until their skins are spoiled. To encourage poisoning, it must be possible to secure the skins in good condition, or, at least, to find the animals after they are killed, so that the ranchman may have the satisfaction of knowing that he has accomplished something toward the protection of his stock.

In the use of poison it is of first importance to determine the amount that will kill with certainty in the shortest possible time. The smallest dose of strychnine that will kill a 25-pound dog is approximately one-fourth of a grain. Quadruple this for a 100-pound wolf and we have 2 grains. One grain killed a 21-pound dog in seventy-five minutes, while 2 grains killed a 40-pound dog in twenty-seven minutes, without acting as an emetic. For a wolf, therefore, 4 grains of pure sulphate of strychnine would seem to be a proper dose.

Tests on 40-pound dogs with 1 and 2 grains of cyanide of potassium in capsules caused the dogs to vomit in about fourteen minutes, after which they fully recovered. Other more deadly poisons can not be safely handled, and strychnine is the only practicable poison that can be recommended.

Directions for Use of Strychnine

For wolves place 4 grains of pulverized sulphate of strychnine in a 3-grain gelatin capsule, cap securely, and wipe off every trace of the bitter drug. The capsules should be inserted in a piece of beef suet the size of a walnut, and the cavity securely closed to keep out moisture. The juice of fresh meat will dissolve the gelatin capsules, hence only fat should be used. The necessary number of these poisoned baits may be prepared and carried in a tin can or pail, but they should not be touched with naked hands. Old gloves or forceps should be used to handle them. The baits may be dropped from horseback along a scented

drag line made by dragging an old bone or piece of hide, or may be placed on, around, or partly under any carcass on which the wolves are feeding, or along trails followed by the wolves. Partial concealment of the bait usually lessens the wolf's suspicion, while some kind of scent near by or along the trail insures its attention.

The gelatin capsule will dissolve in about a minute in the juices of the mouth or stomach. When the strychnine is taken on an empty stomach it will sometimes kill in a very few minutes, but when taken on a full stomach the wolf may have time to travel some distance before dying. In experiments on dogs the animal usually becomes helpless in one or two minutes after the first symptoms of poison, and dies five or six minutes later.

Trapping

Most of the wolves trapped are less than a year old, generally spring pups caught the following fall or winter. After a wolf has reached his third year and run the gauntlet of traps, poisons, guns and dogs, its chances of dying of old age are excellent. Around the dens I found the old wolves especially wary, and so suspicious of both traps and poison that I was utterly baffled in attempts to catch or poison them. Excess of scents and baits made them only the more suspicious. This may not always be the case, however, for old wolves are sometimes caught when the pups are still with them, though large enough to leave the den: and, moreover, wolves vary much in habits, disposition, and intelligence, so that, though one refuses to be trapped, another may prove an easy victim.

Traps

For wolves nothing smaller than a No. 4 double-spring trap with heavy welded or special wolf chain should be used. If the trap is to be staked or fastened to a stationary object, the chain should have a swivel at each end; if to a drag, one swivel next the trap is enough. A wolf will bite

and break an ordinary flat steel chain, and will break any ordinary chain that is allowed to twist or kink, if it is fastened to an immovable object.

The best anchor for a wolf trap is a stone drag of 30 or 40 pounds weight, to which the trap is securely wired. A long oval stone is the best, but a triangular or square stone can be secured wired. Ordinary galvanized fence wire or telegraph wire should be fastened around the ends of the stone and connected by a double loop of the wire, and the trap chain fastened to the middle of this loop. A jerk on the trap tends to draw the band together, and the spring of the connecting wire loop prevents a sudden jar that might break trap or chain. Twisted or barbed fence wire may be used if sufficiently strong, but it is not so easily handled. If no stones are available, or if the trap must be immovably fixed, it should be fastened with twisted iron stakes that can be driven below the surface of the ground. They should be at least 18 inches long and of good iron straps three-quarters of an inch wide and three-sixteenths of an inch thick. In light soil they should be still longer. If a picket pin sufficiently strong, provided with a swivel that will turn in all directions can be purchased at the local hardware store, it may not be necessary to have a pin made to order.

Directions for Setting Traps

The trap, chain and stone drag should be buried out of sight close to a runway, where the wolves follow a trail or road, cross a narrow pass, or visit a carcass, with the trap nearest the runway and flush with the surface of the ground; to keep the earth from clogging under the pan, the pan and jaws should be covered with an oval piece of paper, and over this should be sprinkled the fine earth until the surface is smooth and all traces of paper and trap are concealed. The surface of the ground and the surroundings should appear as nearly as possible undisturbed. The dust may be made to look natural again by sprinkling water on it. Touching the ground or other ob-

jects with the hands, spitting near the trap, or in any way leaving a trace of human odors near by should be avoided. Old, well-scented gloves should be worn while setting traps, and a little of the scent used for the traps should be rubbed on the shoe soles. A piece of old cowhide may be used on which to stand and to place the loose earth in burying drag and trap.

A narrow trail may be made by dragging the stone or scraping the foot from across the runway to the trap. A slender line of scent should be scattered along this drag mark or cross trail and more of the scent placed around the trap and 6 inches beyond it, so that the wolf will follow the line directly across the trap, stopping with his front feet upon it. With old, experienced, and suspicious wolves, however, it is better not to make the drag mark, but to set the trap with great care close to the side of the trail and put the scent just beyond it. If possible, place the trap between two tufts of grass or weeds, so that it can be readily approached from one side only.

Use of Scents

Success in trapping depends mainly on the use of scents that will attract the wolves to the neighborhood of a trap and keep them tramping and pawing until caught. Meat bait alone is of little use, for as a rule the wolves kill an ample supply for themselves.

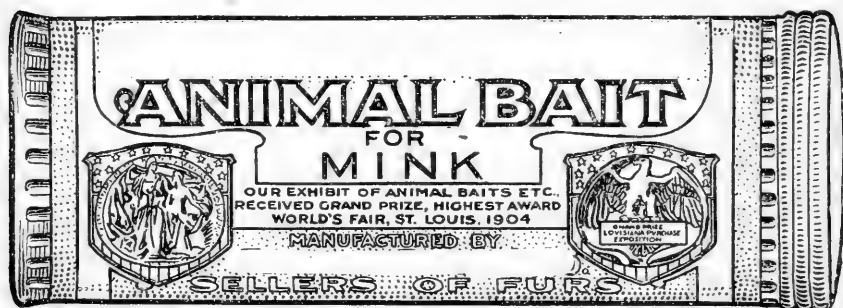
Beaver musk (castoreum) and the commercial perfumery sold as musk have proved effective in many cases by causing the wolf to turn aside to follow the scented cross line and so walk into the trap. Siberian musk (from the Siberian musk deer) is very attractive to wolves in the Zoo. Oil of anise and oil of rhodium seem to have no attraction for wild wolves, and are scarcely noticed by those in confinement. Asafetida is mildly attractive to wolves and coyotes at the Zoo, but used alone is very slightly, if at all, attractive to those on the range.

Wolf urine taken from the bladder is used by some trap-

pers, and is said to be very successful. It is bottled and kept until rancid and then sprinkled over the trap. The sexual organs of the female wolf immersed in the urine are said to add efficacy to this bait. The urine of the female in the rutting season is said to be especially attractive to males; it should be used in January or February.

Fetid bait.—The bait that has proved most effective may be called, for lack of a better name, fetid bait, because of its offensive odor. It has been long in use in variously modified forms by the most successful wolf trappers, and its preparation is usually guarded as a profound secret. It can not be credited to any one trapper, since no two prepare it in just the same way, but in most cases its fundamental odors are the same. It may be prepared as follows:

Place half a pound of raw beef or venison in a wide-mouthed bottle and let it stand in a warm place (but never in the sun) from two to six weeks or longer or until it is thoroughly decayed and the odor has become as offensive as possible. If the weather is not very warm this may require several months. When decomposition has reached the proper



The Very Best Prepared Animal Bait-Scent.

stage, add a quart of sperm oil or some liquid animal oil. Lard oil may be used, but prairie dog oil is better. Add half an ounce of asafetida dissolved in alcohol and one ounce of tincture of Siberian musk, or, if this can not be procured, one ounce of pulverized beaver castor or one ounce of the common musk sold for perfumery. Mix thoroughly and bottle securely until used. Apply the scent to the grass, weeds,

or ground back of the trap with a stick or straw dipped in the scent, or by pouring from the bottle. A teaspoonful should be enough for baiting one trap, but in some cases more may be used to advantage. It should be placed beyond the trap to lead the wolf across—never on the trap—as the first impulse of the wolf after sniffing it is to roll on it. This bait is very attractive also to cattle and horses, and unless great care is exercised the traps will be tramped over and pawed out daily by the animals they are intended to protect. If possible, they should be set where cattle do not often pass or on patches of stony ground or just over a fence from cattle trails.

Preservation of Wolf Skins

Prime wolf skins in fall and winter, if properly handled, are worth from \$4 to \$6 for robes or rugs. For either purpose the skin should be complete, with feet, ears and nose perfect. The feet should be split through the soles, all bones removed except the terminal segment of each toe, and the skin opened out to dry. The ears should be partly skinned, the thick base of cartilage removed, and salt forced in between the skin and cartilage. The tail bone should be removed and the tail split along the lower side to the tip. The skin should be nailed up as nearly square as possible, with the legs wide and short, and left to dry in the shade. Many skins are spoiled by drying in the sun or by imperfect skinning.

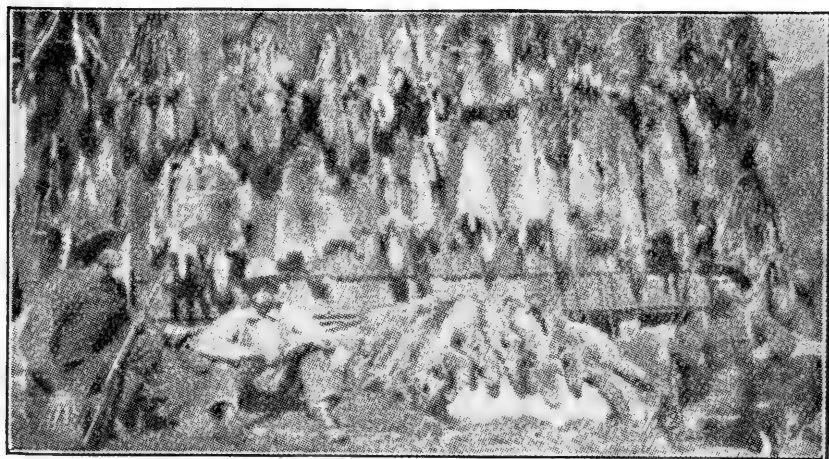
Museums and taxidermists will usually buy wolf skulls at 50 cents each if the bones are uninjured and the brains scooped out and enough of the flesh removed to prevent their becoming offensive. For museums they should be labeled for sex, locality and date.

Occasionally wolf bounties are paid on coyotes because county officials can not distinguish between a large coyote and a small wolf, and in certain localities the distinction is exceedingly difficult. In doubtful cases the Biological Survey will be glad to identify the animals.

Trapping Coyotes.—No. 3 traps anchored, set and baited as for wolves should be used for coyotes. The same scents are attractive to coyotes, but the fetid bait is especially recommended.

Poisoning Coyotes.—Two-grain capsules of strychnine should be used for coyotes, in the same manner as for wolves.

Locating Coyote Dens.—Coyote pups are usually born in April or May; otherwise the breeding habits are similar to those of the wolf. Bad-land washouts are favorite resorts, but the young are often found under rocks or in side-hill burrows. The dens are readily located on bare ground in bad-land regions by the numerous tracks of the parents. In most cases a spade is required in getting at the young.



From left to right: C. W. Keller, J. A. Mehrten, Chester Wright—the Government Rangers Who Trapped the Animals.

These Trappers Used Trail and Bait Scent.

HUNTING AND TRAPPING THE FOX

Red, Grey, Cross, Swift, Black, Blue, White, Kit and Silver Foxes

Preliminary to this subject, I desire to inform the reader of one thing that is uppermost in my mind, which is this: That while scientific men generally claim that there are some fifteen to twenty species of foxes, that my contention is that there is but one specie, **but fifteen or twenty varieties.**



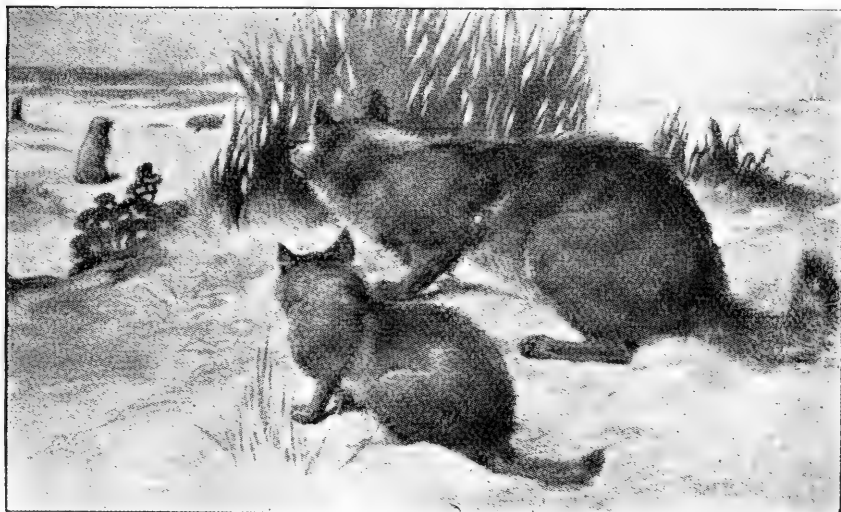
Red Fox.

The truth of which will possibly be made plainer to you as we go along.

Of all animals, perhaps, the fox is in a way the most crafty, shrewd and intelligent. They have learned by generations and ages of observations, experience and memory of past occurrences, and the ways of man especially. They are increasing in value on account of the unusual demand for their fine pelts, by the furrier and fashion, and in numbers, owing to the fact that they hug more closely to the smaller civilized and farming districts, while their natural enemies, wolves, wild cats, etc., have been more or less exterminated, or driven from the locations in which they abound and thrive. Again, to the fact that these same districts furnish them with much of the foods which provide for their increase, such as harvest and field mice, squirrels, wood chucks, gophers, rats, rabbits, hares, grouse, wild fowl of all kinds, small game birds, chickens, eggs, berries, and even harvest foods, beetles, insects, etc., all of which furnish them with an abundance of foods which



The Master Trailer at Work



Teaching Its Young.

they are very fond of in seasons. They learn quickly by observation of the ways of their now greatest enemies, man, dogs and traps, and how to avoid them. And in locations where they are not hunted much, they have increased considerable by this knowledge, and their nocturnal wanderings in unfrequented locations, during which time they invariably find an abundance of good foods, peculiar to them, as is evinced by their fine and sleek condition in season. Yet before I enter into a discussion of the better methods of hunting and trapping them, I shall give the reader some information as to their habits and peculiarities.

Indeed, these are the important things that must be learned, and the trapper or hunter who makes a study of such facts, and becomes an authority on them, **instead of an authority on catalogs**, are the ones who will succeed and profit thereby.

Indeed, without the use of such knowledge it would be a difficult matter to locate, decoy, lure, trap or hunt them.

Wolves, coyotes, dogs and their allies belong to a family in which each of the series have four toes on the hind feet—claws, dull, short and untractile, not concealed or sharp like as in the cat, for instance; thus the tracks of these animals are much alike to each other—differing only in size, the fact which makes the trailing and identification of them an easy matter (see chapter and illustrations on tracks, trailing, etc.).

They are unusually observing, suspicious and curious, so much so that they have been known and will invariably follow in the trail and tracks of the trappers, and to observe and watch his actions in placing, setting traps, and the time of his making his rounds even, and in following even hunters and dogs at a safe distance away for a similar purpose, securing thus, too, many wounded birds, rabbits, etc., which often escape, hide, are wounded or lost to the hunter on his trip; thus intelligently they secure many an easy good meal, and familiarize themselves much as to the habits and ways of man besides.

Of the American varieties which inhabit this continent, perhaps the most numerous is the red fox, which averages about three feet in length, has grayish rump and flanks,

AN OLD AND SUCCESSFUL TRAPPER
AND GUIDE.



It's Experience that Counts at the Game.

hairs of the tail partly black near the end, while the tip of the tail is whitish, legs black, partly white inside, throat white, and ears tipped with black; in color they vary, especially in the northern districts and ranges; some with a black band on the shoulders, and along the back is termed, by reason of it, the cross fox, while the silver fox is but a grayer kind, and the black fox a black variety of the same animal.

This is why I class them as "varieties" and not different "species," for I see no reason for such a term. In the human race we find twenty or thirty varieties; for instance, Chinaman, Indian, Hebrew, etc., etc., yet they are certainly not different species of men. Now if we take the foxes of the Himilayan Mountains or Egypt, Thibet, India, England, northwestern Canada or America we find little or no difference, be they red, gray, blue, black, silver or white foxes. All of them being of the same specie, and differing only according to habit, environment, locations and surroundings. At times, true, these relative differences make one incline to believe that they are distant species, but I claim not. Indeed, records show that even the Arctic white fox has been found in temperate and torrid zones, and, for that matter, blue and black, silver and white foxes have also been found in districts remote from those attributed to them, and some times in one litter even, they have been noticed, several **varieties**.

In the red fox, too, we find the back fur reddish brown, with a tinge of yellow, which graduates down to more or less white underneath. Back of its ears and the fore parts of its limbs are inclined to be dark; its bushy tail or brush, usually terminating in the white tip, serves as a signal by which they communicate to each other, in a way, and which has various other purposes, which will be taken up in turn. Its peculiar shaped head, sharpness of the muzzle, elliptical clear eyes, indicates its possession of shrewdness and cunning and betrays its sneaky character, while its possession of a sub-cordal gland secretes a fetid substance, the emission of which gives to them a peculiar, distinct scent or foxy odor, which varies in all varieties, particularly in those of the southern kind, and which is found to be lacking in

the extreme northern, Asiatic or Arctic kinds; in fact, northern varieties of all animals, with few exceptions, are found to be lacking in odor when compared to the more southern kinds.

In regions where foxes have not been trapped or hunted much they are not difficult to either approach or capture, but, on the other hand, are the most wary, sly and crafty of all animals, with the exception, perhaps, of the wolverine, which not only places them second in the rank of intelligent animals generally, but taxes the patience and skill of both trapper and hunter to the utmost.

Peculiarly enough, it is observed, too, in districts where they are trapped much, that young cub foxes are extremely suspicious and wary, and this fact I attribute largely to inherited memory of events, as sometimes they are harder to trap than even older foxes.

As a rule they are solitary animals, except in certain seasons (rutting and breeding), nocturnal in habits, or "night-roamers"; either living in the open and concealed spots of the woods, or in burrows known as its earth, or holing up in the deserted holes of other animals, which it drives out for the purpose, such as rabbits, badgers, etc. Instances being known even where it has resided in an excavated portion of even a badger's home, and the two of them have been found living together. It lives and frequents both woods and open country, and, as a general rule, hunts in districts remote from its habitation. In fact, this is one of the peculiarities of fox nature; you seldom find them hunting around their own neighborhood.

As a rule, while foxes are somewhat cleanly in appearance, yet about their dens they are not, and will often leave bones and feathers around their earth, but as this is largely done for the purpose of enticing mice, etc., to that vicinity, so as to all the easier catch them, we can see reason and method back of even this trait. On the other hand, we observe, too, in districts where dogs are used to hunt them much, or trail them to their dens, that they are very often foxy enough to even remove these bones and feathers to quite a distance away, and to even preserve these favorite

feeding spots away from their dens, thus peculiarly adapting their habits according to circumstances.

Again we find many who seem to care for no hole, earth or burrow—simply laying in cover only; others seeking the protection of a den amid rocky boulders, stony places, cliffs, ledges of rocks, roots of trees, which afford greater protection to their young. Either this, or choosing hollow logs, wind-falls, tree stumps, dense under-brush, or rocky protected crevices, usually on the south side of the hill or warm elevation. Resting by day, and indulging in a sneaky chase by night, when it can see better, like a cat.

Its rutting or breeding season is usually in February or March. The vixen or female producing her young usually in a litter of four to eight, after a period of gestation, in about 60 days. The dog foxes usually staying by the vixen during these times. They live about an average of ten or twelve years, although in captivity as long as fifteen or more, as their duration of life depending largely, of course, upon conditions. When born, the cub foxes are blind, helpless and covered ears and body with a smooth brown, fluffy kind of fur. When about two months old they are able to go out of the burrow or nest, and at an age of about six months are able to shift for themselves. To suckle them easy, the vixen often pulls off the hair around her teats, and in the protection of its young the vixen fox is almost fearless, sometimes even driving away their dog foxes and not allowing them to approach the litter.

In coloring they most take on that of the locations they frequent, as well as the fox with whom they frequent, pair or breed; impulses more than choice of mate seeming to be considered; hence, in the same litter, one will often find cubs differently colored. In weight a full-grown fox will perhaps average 15 to 20 pounds, according to kind, time of year and conditions. At times, too, dog foxes will remain with the vixen throughout the breeding season, in which case they often hunt jointly with each other, each taking a certain part in the game—the one to scare up the prey and drive it towards the other, who remains concealed, in the near distance, so as to surprise it, as it is driven towards them, and, as a rule, I have noticed that they act

in concert with each other, as if the whole affair has been planned and premeditated with almost human intelligence. The dog fox doing the bulk of the work, and the vixen taking the part of an able assistant.

When with cubs, dog foxes seem to have a sort of respect for the vixen, for although, at times, she will turn on them and bite them severely, it is seldom that they retaliate. Indeed, but few males have been known to hurt the vixen, and even dog hounds, in the breeding season, seem to recognize the slut fox, and in due honor to her condition seem inclined to unmolest her, and will often sneak off with their tail between their legs, as if ashamed that the object of their chase turned out to be a maternal parent.

When the cubs are produced, the old vixen displays an unusual mother-like care to her cubs, often going hungry that they may feed, and will sit for hours watching them play from a point of vantage from which she can observe what is going on a safe distance away—ever on the lookout from danger on all sides. At the least warning from the mother they will scamper to their cover and conceal themselves effectually, remaining thus hidden and safe while the parent herself will endeavor to lead away the enemy from the location in which her cubs are hidden, and seldom returning until the danger is past. If for some reason she would lose her life in the protection of her young, the dog fox would assume the responsibility in a way, of raising the litter, at least until they were fairly able to take care of themselves; if not, the first born of the family usually takes the lead, and I want to say right here that in all wild animal life the first born seems to be the curtest, wisest and most generally favored of the lot, and the others obeying him or her, and respecting him much like they would the parent herself. As stated before, at the least warning they will scamper to their cover or burrow, remain thus hidden and safe, while the vixen goes out on her hunts for her food, or theirs, never leaving or showing themselves until the vixen's return, or until they are starved out. And when about six months old are fairly able to take care of themselves in all respects, even to going alone, if necessary, and shifting for themselves.

In their early lessons, their vixen fox accompanies them,

showing them how to seek and search, capture and kill their prey, taking them even to the harvest fields in which they search for grain, fruit and berries, of which they are very fond, and in teaching them how to avoid the danger spots, as well as to seek the safer ones, and when they are about able to take care of themselves the vixen fox drives them away from her, to take up their abode and domain elsewhere.

It is at this time that these young foxes are caught by the early trappers or skimmers, and the capture of one of these should not lead the captor to believe that he has graduated in the art of fox trapping, not by any means.

If taken when young, from their parents, foxes will be found hard to tame, unusually so; in fact, it is claimed that no wild animal is ever tamed—only trained. I am inclined, however, to doubt this in a way. While swift in their way, they are deliberate, yet are often winded easily in a long run, necessitating frequent rests, hence are often hunted and hounded by dogs and wolves, both, to their death in a short time, and it is on account of this persistency with which they are hunted, hounded or trapped that they become so extremely shy, and skillful in avoiding and eluding its enemies, by its craftiness, and in the knowledge of the weakness of its pursuers. By its persistent watchfulness and curiosity it learns the ways of its enemies, and employs artifice to combat main strength and stupidity of mankind whenever possible to do so. In other words, using a little "head work," and not letting its brains run to its feet, like many so-called hunters and trappers.

It is their unusual scent and hearing that enables them to locate both their enemies and prey long before sight has observed them. The faint rustle of the mouse or bird in the dry leaves or grass being instantly detected by these remarkable acute senses, far more than sight, which, cat-like, by nocturnal habit, is much better at night, and if you but closely observe their eyes at any time, you will find the pupils thereof contract into but a mere slit by day. Indeed, trappers and hunters will do well to remember that all animals that are nocturnal or "night-roaming," see much better by night than by day, while birds and fowl with but

few exceptions see by day mostly, reversing the order of things, as it were. As a rule, too, they are unusually quiet and noiseless, both in voice and movement: a short treble bark or yelp, peculiar to them, being seldom indulged in, mostly in the pairing season, or as a call, and then used by younger foxes more than old ones. It is by these cries that the trapper or hunter, if old at the business, attracts them at times to his vicinity—that of the vixen fox being especially telling in season. Again, by imitating closely the chirp of the bird, squirrel or wood-chuck, a quack of the duck, a call of the grouse, answering the same purpose exactly. Indeed, hunters and trappers should learn to imitate the simple cries of the woods, that they may serve his purpose in many ways in the time to come. It is surprising how proficient one may become in these things, with a little practice, when alone.

Don't forget what I have told you, that as a rule they can both smell and hear you before they can see you, and that while you depend on sight alone, **they do not.**

Don't forget, too, that animals generally go about things in many respects, the opposite way to us. And if you bear this in mind, it will be a vast aid to you. I will try to make this plainer to you as to what I mean. Take, for instance, a young puppy dog; if he keeps still and observes you, it will come towards you, but if you move towards it, it will run **away** from you. While if you move away from it, it will run **after** you. This is animal nature, and they all show similar traits. They go largely by actions, and even judge from them. If you show fear or signs of it, they are brave, and if you show no signs of fear, they are afraid. If you keep still they are apt to get curious and move around to get closer to observe or scent you. If you move, they are off, and if you run, they know you are afraid, and if it is a bear, for instance, the chances are "it's your last run"; that is, if you are having a scrap with him. For, as a rule, I don't care what the animal is, if you leave him be, and go your way, he will leave you be, and go his way, too.

Another thing, animals generally dislike to run to leeward; they most generally prefer to run, nose to the wind, so as to scent unforeseen dangers, even if you are in the

way of them, and many a story "of the son-of-a-gun come right towards me" originated because the party did not know this was a wild animal trait. To make this plainer to you, I will say that a wild animal generally has one thing in his head at a time, and if he is going a certain way he don't seem to stop to think that you are in the way. If, however, he does turn away from you, you can gamble that he has got a pretty good opinion of you, and can liken his act to an example which he would like to see you follow.

There is just as much need of exercising your judgment in these things as in anything else of a similar nature even.

We have read much of the intelligence of foxes, as a rule, but little as to "how he deserves the title." If any of my readers ever had the opportunity to watch them I don't think they had much the best of the fox—the chances are he, too, played the same watchful game. They have the habit of trying to be indifferent to such things. Nine times out of ten when he sees you he tries to let on he doesn't. It is part of his nature. I don't care whether you come across him suddenly or not, as you may think. The chances are he has had "whiff" of your scent and is laying low for developments—of the two, however, you can gamble he is the least surprised, and in every way has you at a disadvantage. Mr. Fox will act as though it was an every-day occurrence, and he will treat it as if he were expecting it. You can be sure, too, that he is the least put out about it. If you carry a gun he will slink off in a methodical sort of way, carefully putting something between you and him, so as to offset or hinder your aim. If you haven't, the chances are he knows it, and has awaited your coming so as to closer inspect one who he knows has tried so hard to get the best of him. If you see him at a distance like, he was perhaps perched upon a log, tree stump, rock or mound, taking in all you were doing, or sizing you up as you came along—before he jumped down and "hiked" away along or across your path, as the case may be.

Indeed he has learned long since that sitting down in a quiet sort of way in a likely place is a good rule to follow, when he wants to see things, and if you are wise you will follow the plan, too. It is certainly much better than hoofing it about all day, with but a similar end in view.

Pelts Always in Demand.

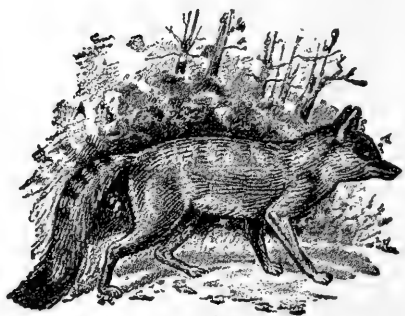
Wild Cat



Lynx



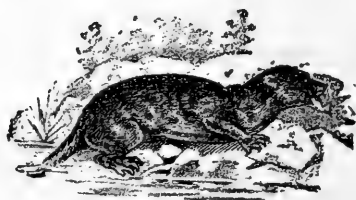
Cross Fox



Grey Fox



Ringtail Cat



Otter

Animals That are Trapped

When hounding foxes one may learn much of their crafty nature and ways. I have seen them time and time again hide, lay down, rise and stretch, even chase their tails, while all the while the hounds were "tongueing" and on their trail in the distance, starting off at a leisure trot, as they approached, as if they really enjoyed the chase, and relying more upon their knowledge and trickery than by speed they will double on their tracks, circle round, take to the stony watered course of a running stream, run logs and trees, in an effort to break the scent; and if successful will even turn, watch or follow the hunters or dogs, as if enjoying their confusion and ignorance. In this he is aided by the observing knowledge that neither man nor dog pay much attention, or are mindful of their back tracks, while all hunted animals are.

They have, too, been known to make friends with dogs, even to playing and running with younger hounds, chasing them and then driving them off again. Wolves, to which family the fox belongs, even going further than this. For many a slut wolf has been known to consort with several different dogs, and to have even connections with them in season. Indeed, one-half the Indian dogs I have seen, which belong to the Esquimaux and North American Indians, with whom I have spent many years, are but the very offspring of the wolf itself, defying many to even distinguish between them in any way, form or shape, looks, color or action even.

Often when trapping, too, one can observe how they have been followed by both wolves and foxes, who in regions inhabited by them will follow even in the foot or snow shoe trail of the hunter or trapper, or in the path of sleigh, sled or wagon wheel trails; and one has but to take a few doses of reason and judgment to realize that they have been both followed and watched by these crafty animals, who by curiosity and information thus gained dodge both the hunter and trapper, and render his efforts to kill or capture them in many instances next to useless.

In these traits both fox and wolves use much the same methods. Any old trapper or hunter will tell you one is just as hard to trap or lure as the other, both of them having many similar and yet dissimilar traits.

The best time to find either is very early in the morning



An Ideal Playground for the Fur and Feathered
Denizens of the Woods and Forest.

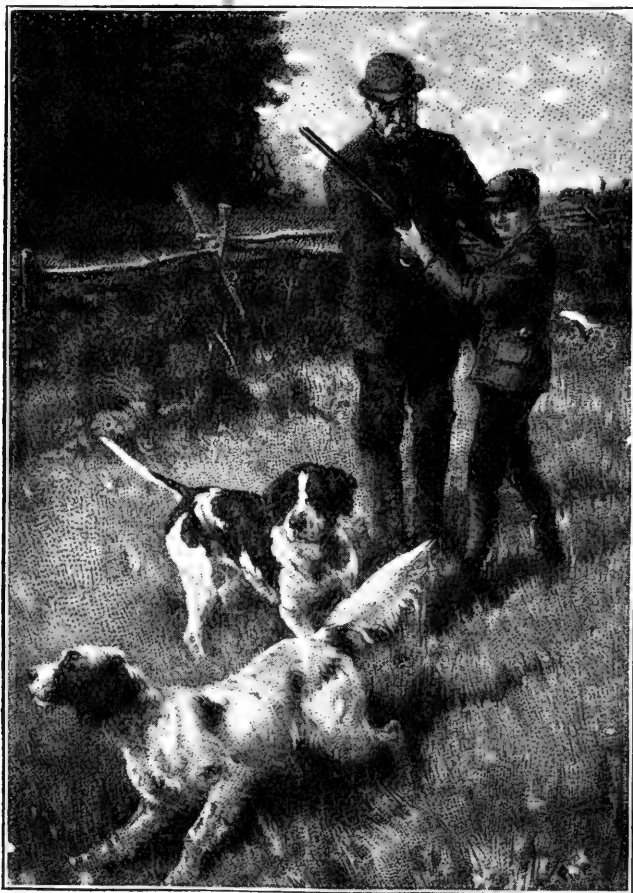
or evening from twilight on, or on moonlight nights. If in the day time, about noon, when they are sunning themselves and watching—hence difficult to find or approach.

While wolves hunt in packs, foxes seldom do; at the most a pair of foxes will, and this only in season, as they invariably sneak about alone, solitary like. You will find young foxes easier to trap than old ones, but it is because they are green and not experienced enough. Yet younger foxes are extremely suspicious at first, sometimes more so than the old fellows, until they become bold. Like the wolf, they roam around, covering a good deal of ground, in the coldest of weather especially, going here and there; and often one is inclined to think there is more of them than there really is by their numerous yet same tracks. When all other animals are "holed up" foxes and wolves prowl around. At these times their scent is unusually acute, and as game in winter is generally scarce, they are invariably hungry and on the go. It is this acute sense of smell that makes them, together with the knowledge and fear of man both, extremely suspicious and difficult to lead to trap, because they invariably smell his tracks or trail and avoid the vicinity of theirs.

The greatest difference between them is that wolves, as a rule, depart from civilized communities, while foxes thrive and remain there, because the wolf is his enemy, although indeed they live in peace together when foods are plenty, and under certain conditions.

Both foxes and wolves, in their travels, too, void their urine, much as do dogs, on various limited mounds, stumps and little hills, as they go along, roaming around from place to place, traveling in similar paths (every beaten well known spot is their signal station and meeting spot), and periodically visiting their favorite spots and haunts, continually on the watch for any prospects of a feed, the fox often covering 15 to 20 miles in a night, and wolves considerably more.

When food is plenty foxes will often bury and leave the remains of a feast, and will as surely return to that same place for another feed. If it is small game and a vixen fox, she will often lug it off with them to their cover or den, carrying it off in their mouths after holding their head high to do it. I have never seen them toss it over their shoulders

Experience is the Best Teacher.

His First Lesson.

Perseverance Leads to Success.

to carry, as some writers declare. I know, too, by observation that foxes especially love to catch and kill their own food. While not adverse to eating carrion or dead flesh, if hungry, they will never touch it if they can help it—unless it is their own killing; then they like it, and the more “gamey” it is the better; in fact it is sometimes buried for this purpose. But of all things they enjoy it is a feast of something they have run down, caught or killed themselves.—rabbit, wild fowl or birds especially—mice being a favorite morsel. They will at times, too, store up quantities of food killed by themselves, especially toward winter.

In my Hudson Bay trapping experiences I often found in fox dens and coverts mice and lemmings in plenty, stored away, some of which I often used in baiting my traps. Arctic foxes, too, peculiarly enough, have but little scent glands. In fact, in my experience I have found that as one goes south these scent glands increase; hence I attribute much of the make-up to the variety of foods which they exist upon.

Another thing I wish to impress upon the minds of my trapper readers especially is the fact that if you use live baits when trapping you won't have much cause to complain of success, if foxes abound. Time and time again have I proved this to my own satisfaction, not only in the North, but in nearly every State in the Union where I have trapped as well. I have found there is no decoy, lure, bait or scent equal to the real thing.

In seeking their prey foxes are great stalkers, creeping up slowly toward their quarry, in a round-about way, or will still hunt equally as well laying for a squirrel, bird or rabbit, like a cat will watch for a mouse. Even in the South they will hunt muskrat, squirrel or skunk the same way. I have seen them watch a hole or burrow from behind it, lay on a projecting ledge, or, concealed by a log or bush, watching for a chance at any of them, playing 'possum like, or trying to draw or coax them within springing distance, even leaping up into the air, or on a low tree branch, to secure a mouthful of “fur or feathers,” as the case may be. A fox, too, when hard pressed with hounds, will leap into a low tree branch to avoid the dogs; but not an old fox. There are no foxes that can climb trees; they can leap up

to the lower limbs—the grey fox especially—and from one limb to another, but I have never seen them **climb trees**, as is claimed by many writers, and I don't believe there is any truth in the statement. I have seen dogs do the same thing—go up in a low branching tree pretty well after coons, squirrels, etc., but when it came to coming down they whined and howled, as if saying, "Help me out of the fix I'm in"—and the same rule applies to **foxes** equally as well.

In killing their prey they spring and grasp it by the neck or throat and snap at it, much as does the wolf, and will even do this to the "skunk," seeming to kill them quickly, before he gets a chance to throw his scent. Indeed, the more I see of animals and birds generally, who are caught and killed thus, the more I am inclined to think and believe that their death is almost painless. It seems as though the suddenness of attack shocks, dazes or paralyzes them, especially so when taken by surprise. On the other hand, if they meet and fight on anything like equal grounds, you will see almost any animal or bird put up a good, stiff and often prolonged and a desperate fight, keeping it up until they kill or maim each other; or like good Irishmen in a scrap, one quits or cries **enough**. And it is evident, too, they regard the first blow or attack as half the battle besides.

As the vixen cohabits freely with any male specie, the strain or breed is often mixed in the one litter; this, however, not being noticeable until they mature. You will find, too, in all foxes that the scent glands are **unusually strong** and active as the pairing season advances, and these scent glands, at these times of all, are especially valuable to the trapper for future use, although at this time it is a fact that they hunt mates more closely than foods. (See Scents, Bait, etc.)

When hounded by dogs they will travel great distances, but seldom in a straight-away direction, unless it is a stranger to the locality, in which case they invariably head for their more familiar haunts, and have been known to cover 25 to 30 miles of distance thus in a few hours' drive. As a rule, however, they circle round, depending more on misleading the hounds than upon speed, and relying on trickery. Good dogs will invariably run them down in a few hours at the most. For this purpose one or two fast hounds

are used, or perhaps let in to the chase at various periods. As this will be taken up more fully elsewhere, we will turn to other subjects in this chapter.

I have referred to the acuteness of a fox's scent before, and much has been said of the fox's ability to smell traps and the iron thereof. To my mind, however, this is over-estimated. It is his ability to smell man scent and to read signs that keeps them away from traps more than does the smell of iron. An old fox is so afraid and suspicious of man that he will sometimes refuse to even cross the path or tracks of his most dreaded enemy, and will often go back miles to avoid it, so much so that I am convinced that if trappers generally did as much to conceal their own scent and doings, as they did to remove the scent from their traps they would be better off for the trouble.

The great trouble is that trappers generally leave too much of their own scent and sign around—so much so that one can see proof of it at a glance—by fox signs, going near or around about your traps, **but not up to them**. When you see this just realize you are to blame, and if you are wise you'll take the hint.

A fox can tell where you have stored and dug up the ground in an effort to set or locate a trap correctly, better than he can smell iron, and he is too foxy to commit suicide. True, they can smell iron; but if you can fool their suspicious eyes and leave less of your scent and sign around, you can trap foxes, provided you possess the other necessary qualifications as to the correct place to make the set, to use bait and scent judiciously. He is chuck full of far greater intelligence in the way of locating suspicious-like signs than he is of smelling iron and locating traps.

Perhaps you have noticed that often your best success comes after a slight fall of rain or snow. That was because it helped kill sign and your scent more than the smell of it.

Again, I want to call attention to what I consider the too free use of dead bait. I have personally watched them paw over and play with a piece of meat laid out for the purpose of leading them to a trap, and, like a cat, will paw a strange dead bird or grouse. They seemed to act afraid of it. They took it in their mouth and spit it out, as much as to say it tastes and smells suspicious like, and when eventu-

ally they swallowed it, it went down like medicine. The whole truth was, it had human scent, thereon brought about in handling it.

Another thing I want to call attention to is in the improper use of "scents" generally. There is too much doping going on in an inexperienced way by the trapper, concocting or making his own. This business is mixing up cat, skunk, muskrat, fish oils, etc.; can be and is overdone. Scent is all right if right, but this smell or stink, mix up anything or kind of scent, is just where trappers make a big mistake. They seem to think if they can raise a big stink it's all that's necessary. "Not by a jug full." The scent of a putrid carcass is fine scent—just as much as it is good bait—because it is natural, it is right. But there isn't a fox living but what can distinguish it as against some of that worse than human excrement called Home-Made Trappers' Fox Scent.



In the Trappers' Haunts

Use and Abuse of Trail and Bait Scents.

(Right and Wrong Methods)

There is too much of this happy-go-lucky-hit-and-miss kind of scents, trapping or "skimming" going on. Animals aren't fooled so easily, especially the critter known as the Fox, and he isn't going to lose his reputation and hide by experimenting, or taking pot luck, with things that both look and smell suspicious to him. No wonder it is that animals sometimes express their silent contempt by voiding urine and droppings on such sets, or by turning upside down traps so vulgarly laid, and the sooner it is realized the better. Trapping is an art that requires extreme patience and care, and the quicker and closer you get down to it the better off will be your success. One must use reason and judgment always—the more the better.

The ideal fox scent is that of the vixen fox (matrix and urine) itself, and no home-made dope will equal a few drops of this. The next best thing is natural and fresh bait, and blood, and with these things, and your traps well hidden, set judiciously and right, you'll catch foxes when others fail. (See Baits and Scent chapter.)

In my time, before I got old at the business, I tried about everything I could get. I have used the other fellow's "medicine" and got doped for my pains. I have made, mixed and seen put up the "darndest" concoctions that sun and manure piles could hatch out from worm, snake, fish oil, roes, hogs' liver, skunk, cat and muskrat galore—even getting down to "sowbelly" (fried), catnip juice, wild honey and fox berries, and know by observation and experience that some of the "rot" that's hawked about and recommended as good scent, at so much per ounce or recipe—even imported at that—ain't worth bottle room, in comparison to that made for the fox alone, and even this must be put up and used in correct proportions by those that know how. There are good scents and methods of trapping foxes galore, and plenty of wide-awake trappers who get their share of pelts every season, but they ain't "skimmers," and have learned long since that it isn't the king of assorted stinks that turns the trick. Foxes aren't going around half starved, ready to jump at

SCENT BAITS—RIGHT AND WRONG KINDS



Use of Good Scent Insures Success.

Buy the Very Best Trail or Bait Scent, If You Buy Any at All.
Never Buy from Any but Reliable Concerns Whose
Reputation is Established.

any old bait or scent that leads to a trap, because a piece of meat and smell comes their way—not by a long shot. Neither can any one make a first-class fox trapper out of a dub by instructions alone; it takes experience. But he can point out wherein one's knowledge lacks, and show him how to avoid failures in many ways, and this I propose to try to do in more ways than one.

To begin with, have you ever considered the eradication of your own scent? Take, for instance, your clothing or the gloves you handle, prepare and scent your traps with. Did it ever occur to you that these need boiling out and cleaning just as much as your traps do? A good many seem to think they can paw over gloves and use them for anything and everything, until they smell with dirt and perspiration, human scent, and yet consider them as fit for handling and setting traps. I say no. Try the plan of using cheap canvas, clean overgloves or mitts, rubber if you will, and which you can wash and keep clean. Scent them if you will, and you'll find it better than using those old dirty mitts that are mixed up with tobacco, rust and dirt of every conceivable and foreign kind. Don't be adverse either to wearing clean clothes. If it's winter let them be cotton overalls, white, washed snow-white and clean. Get a pair of rubber boots, or even fur overs, an old skin overshoe, and use to approach and make your sets. Don't be adverse to having in a handy place, near your traps, a log or piece of bark to stand upon. Cultivate the use of snow shoes or skis. Keep to your tracks and standing or squatting in the one place in making your sets, instead of moving around too much. Don't lay your other trap and fixings alongside of your work, or move them about on the ground or snow about you. If you use scent be sure it is the very best. Stand on a rock, and drench even your tracks. If you can rig a makeshift of a few logs as a small raft, or use a log to stand on in the water, do so. Don't whittle chips or sticks around any place or squirt tobacco juice about. Open the stomach of the animals you secure and see what they are feeding on; it will perhaps give you a tip and set you to thinking. Don't be too liberal in pick-up baits; at the most they lead to suspicion, and terminate in what you have tried to conceal,

the trap. Foxes are dainty, fastidious, methodical sort of creatures, who are not going in a sort of hap-hazard way about things; neither must you. He is an adept about deceptions himself, and is expecting such particular things from you. Put more time into the securing and employment of fresh, inviting foods, that tempt and make his mouth water and cause him such surprise that he will forget everything else and get busy to secure it. That's why I recommend appropriate live bait. There is just as much necessity of putting spare time and money in live bait, rabbits and chickens, etc.,—even to raising them—as there is in shotguns and rifles, time and shoe leather. In other words, head instead of feet work. Naturalists in their study of animals oftentimes spend days and nights in tediously watching a hole or spot for a single chance to obtain a photograph of an animal unawares, or in scheming to observe the animal's ways. The true still hunter will spend a week in the woods or forest for the chance of a single lucky shot at his favorite big game. The patient angler will change his flies, in a dozen casts, and stand for hours to his waist in rapid waters, to lure a mere finny fighter to his rod for a test of skill. Is it not then fitting that the trapper exercise an equal share of patience, enthusiasm and care to ensnare the crafty fox, who, inch for inch and pound for pound, matches up with any animal for cunning, intelligence and indisputably contests and baffles your ability to entrap him? Is he not worthy of your best efforts, and shown himself, from the black tip of his nose to the white tip of his brush, fitted for your skill, tests your ability?

Why is it not as sportsmanlike to tempt him to his fate thus, by snare or trap, as it is to meet that pitiful job of being hounded to death and then torn to pieces, after an exhaustive cruel chase, when his strength and wiles have failed him, and overpowering numbers of men, women, horses and dogs thus seek his end, and yet term such the high art of sportsmanship?

Indeed, when I hear such as these folks ridicule trapping as an art I liken it, much as does an eagle to the challenge or criticism of the peacock's.

Another thing of importance in fox trapping is this ques-

tion of baits. By all means, if you have not yet studied the advantages of using live baits or live decoys do so. Nothing in the world makes a fox's mouth water quicker than the prospect of a good feast from a small live rabbit, duck or chicken. Professional trappers often purchase or capture and keep them alive for that purpose, for he has long since found out the sight of such things will make any old fox forget himself and suspicions in his efforts to get next as quick as possible to his feed. He won't even stop to cogitate,, or wonder how it gets there either, until too late to realize the awkwardness of the position his greed has gotten him into.

Right here, too, I wish to call the trapper's attention to the fact that, peculiarly enough, no animals seem to possess the faculty of thinking of any two things at the one time; hence if you can detract their minds from that uppermost in their thoughts or fear, i. e., suspicion and traps, make him forget it, so to speak, by the tantalizing sight of something good moving and alive to eat, you are mighty apt to get an extra pelt for your pains.

Neither will such baits need renewal or resenting when it rains, freezes or snows, or will it smell unnatural like; on the contrary, it will increase in value and attractive qualities so long as you keep it thus, and answer the same purpose for many a similar catch besides.

Another thing let me impress upon you. Never let your bait or scents smell like a dozen different things. Better pin your faith to any single good one. A fox can smell but one thing at a time, and this is generally the one that is the strongest, be it yourself or your medicine.

Again, don't be prejudiced against going out (without a gun) on a moonlight night, after a light fall of snow, so as to watch the quarry you seek. Then you will learn much of the ways and habits of things, which will verify much that I have written here. Watch, wait and listen in likely spots, and you are apt to see things that will prove a revelation to you, and in a hundred ways repay the time and effort.

As a general rule, all foxes will travel in a round-about way to and from their favorite dens, meeting spots or cover, and are unusually careful to approach such places unob-

served. As a rule, too, they select an elevated location from which they can observe what is going on in that vicinity, and will seldom approach if danger threatens. Should one happen upon him when near to his cover, he will turn to a different direction in an effort to lead you away. Usually their den or cover is on the south side of a hill, and they are particularly fond of selecting a tree stump, rock ledge or mound, on which they can bask in the sun. They like to play in dry sand, and will often be found in the sand dunes, banks or little hills, and at these times will frequently go to an elevation to reconnoitre. As a rule they hunt away for these spots, and, like a cat, will lay for hours watching a likely place for rabbit, grouse or small birds. If it can't get near enough it will perform all sorts of antics to attract curious attention and tempt a nearer approach, and many a bird or wild fowl has been lured to its death by these means. As a rule they are flesh-eating, preferring to catch and kill their own foods, seizing their victims by a sudden spring, or chasing or running them down. When hungry they will eat dead food, but not until they have satisfied themselves that it is free from suspicion. After a feast they will go to some stream of good water and drink heartily, and then to cover or den, and with one eye open sleep cat-like naps.

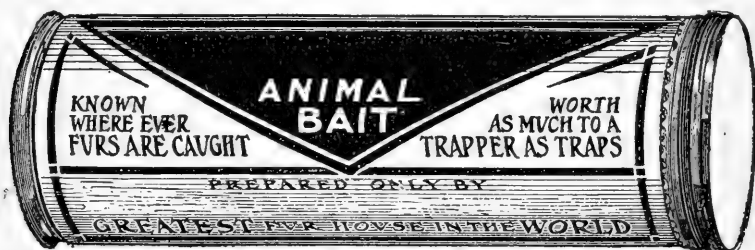
A good way to watch them is to choose a moonlight night, and, selecting some good spot, hide yourself and remain quiet. If they approach in your direction remain perfectly still, and unless the wind blows your scent to them strongly they will not notice you. Indeed, all animals perceive by motion mostly, and if one remains quiet they will seldom take alarm. Ofttimes, too, one can decoy or lure them closer by imitating the faint squeak of a mouse, twit of a bird, squeak of a duck, chirp of a squirrel, or a low, soft whistle.

I have told you before that foxes depend more on acute scent than sight in lots of instances, and this is especially the case in winter and daytime. You will often find tracks of them following railroad tracks, telegraph poles and fences, looking for birds, mice, refuse, etc., that have been thrown from or killed by the train or wires, and for mice holes about fence posts, around corn cribs, stacks, husking piles,

manure dumps, etc., or recently deserted camping places. If you find their trail in these places, or on a path or wagon road, place your traps on the higher spots, about mounds, old tree stumps, etc., where they usually void their urine—a damp, close night makes a scented bait better, while a frosty night diminishes it, and makes a renewal necessary. If you find a good spring of water, examine it closely, to see if it is used by animals for drinking purposes; if so it is an ideal place for a set; only you must leave it as you find it, and arrange your set where he must step up to take a drink. You can lift a piece of sod or moss and drench both trap and chain therein, packing it clear so as to work freely. If a sandy spot, so much the better; and the same rule applies to mossy and grassy places. Never use chaff, wood ashes or rotten wood out of place—anything strange excites suspicion and causes them to avoid it. Use a branch to brush out tracks and even up the ground, or sift some snow over your set, instead of using chunks of it. Don't be adverse to making two or three sets in a likely place; put the bait on your clogs if necessary. If you dig up dry ground use a pointed stick and carry away excess dirt, not leave it near by; stand on a log, stone, old hide, and keep to your own same tracks as much as possible. Let your trap be either No. 1½ or 2; for the smaller species 1½ is ample, and is also suitable for mink, skunk, woodchuck, raccoon, etc.

To prepare the trap, dip it in blood or boil it in rain water and wood ashes, or a composition of tree bark, hen or cow manure, water and beeswax, which will color it brown; ideal for fall uses. If winter time, you can enamel your traps white with bicycle enamel paint for dry sets, or throw into the solution you boil your traps in a few handfuls of lime or kalsomine, which will whiten them to almost snow color. If for water sets, you need not prepare your traps in any way. Try to conceal and disguise the looks of your traps. It isn't the smell of iron, it's the trap itself, and the poor efforts to hide them that makes foxes suspicious. The whole secret is in selecting an ideal spot, and in concealing your sets, disguising the trap—not in destroying the smell of iron. If you use scent let it be that of the fox itself, obtained from the womb or matrix

of the vixen—fur dealers supplying about the best made. If you use live rabbits they will soon scent up a place by their own manure and urine that will bring all kinds of animals to that vicinity. You can protect the live bait by a cage of wire netting, and the longer it stays the better is your chance for final and repeated success. If you find a hollow log put your live bait cage inside, using for this the common chicken fence wire. Then make your sets in each end, one on top of the log or windfall. If you



Animal Trail Scent

make trapping a business get out and locate the best places **before the trapping season commences**; do your work then in a preparatory way, and if needs be group logs, as shown in my illustration, for the purpose, using the ordinary open mesh wire cage to protect and secure the live bait that you place therein, which, if supplied with food, drink and bedding, will live well there all winter long if needs be, just as it would in a regular rabbit hutch or house; you can feed them on dry foods, oats, wheat, vegetables, bran, buckwheat, corn, etc. If you use buck and doe rabbits you will soon solve the question of plenty of live bait, by breeding litters of them yourself.

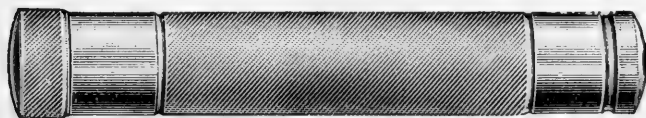
If you find or place a carcass, place your sets at the same time; don't wait until you see signs and then do it, or you will spoil your chances of success. If in a farming district, hunt for tracks on the ground furrows, as animals invariably run along them to old cornfields, wheat stacks, etc., and make your sets in the most likely places; in bedding them down use cotton or a piece of clean cloth, and let your bed be according to the size of your trap, so it will cover freely and clear. If fresh bait is to be had, by

all means use it. If not, use those such as I mention in my chapter on Baits, Scents, etc., not forgetting what I have said about the judicious use of such things. Baits and scents must not be used to excess or overdone, especially in fox trapping.

Again, many run down wolves and foxes with hounds, which work together in a chase. Indeed, this is often considered the quickest way; for this purpose fleet fox hounds are used, supplemented in the pack by several who are fast runners, being interbred with the grey or stag hounds for the purpose. When let out in fox districts they soon pick up a cold trail, the hunters usually following in the distance from behind, striking across and meeting them, instead of following in a zig-zag course.

As the trail shows up more recent signs or becomes hot the dogs will tongue at times freely—a signal or expression that indicates their course, proximity or success, and illustrating the power of animal scent; at times they run or trail silently, but a still trailer in a cold and puzzling trail is hard to follow or keep track of; hence a well-voiced dog is often easier and better suited. As a rule two large dogs play out easier than small ones; hence those of medium size are preferable. When chased thus young foxes will den up, or will, if pushed hard, even “tree” in an effort to throw the hounds off the scent. Foxes, however, do not

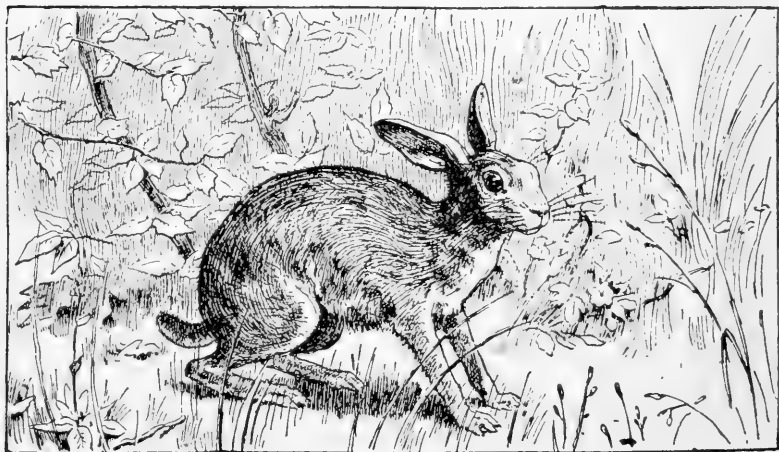
“BUZZACOTT’S” CONCENTRATED SCENT BAIT



One Drop Equals Thrae Drops of the Ordinary Kind

climb trees; they will leap up to the lower branches much as a cat will to hide or avoid their enemies, but I have never yet seen a fox that could really climb trees in the full sense of the word, and seldom do old foxes ever resort to such a flimsy trick, as it invariably results in their capture and end. Neither will old foxes den up; at times young ones will

lead the hunter or hounds to its earth, resulting in the final capture of a family, but not often. Sometimes these chases do not last long, especially so if fresh dogs or hounds are let in, when the fox shows signs of being tuckered out, two or three hours being the average chase. At times, however, they will not circle much, but make a straight get-away, and resort to trickery to get the best of the hounds, leading them to hilly, stony or watered courses or streams, where the dogs lose scent; again in taking through thickets, berry bushes and rough country, which tear the feet and legs of the hounds, and cause them to bleed and become sore; in deer country the hounds are apt in their runs to start deer and to run them to water. In rocky places, however, foxes will take to cliffs and dens and hide safely therein, to the discomfiture of both hounds and hunters. At times, too, foxes will change their dens or cover for newer or more isolated ones, removing their young cubs by carrying them, just as a cat carries its young.



The Rabbit.

HOW TO BAIT THE FOX PREVIOUS TO SETTING THE TRAP.

Go into the woods, make what we call a bed, three feet in diameter, or thereabout. Wood ashes will do, but chaff is best. Oat chaff, wheat chaff, buckwheat chaff better still. Make it deep enough to cover the trap, and have some under the trap to keep it off of the ground or snow. Make it smooth and level, and put some beef scraps on it and throw some around it. This will induce the fox to come up to the bed, and after a few trials he will step into it and pick up the scraps, and perhaps turn it bottom side up to see what there is in it. When you have got him coming regularly and taking the bait, wash your trap clean in weak lye, grease it, and rub off all the rust and dirt. Then hold it in the smoke of burning hen's feathers until it is well smoked. Chain it fast to a piece of wood about two feet long, and as big as your arm. Now take the trap, chain and clog, open a hole in the bed, and bury them neatly in the chaff, having a piece of wood under the trap to keep it steady, and a sheet of paper over it so that the chaff will not prevent its working easily. Cover everything up neatly, and sprinkle the bait as usual upon the bed.

Approach the bed only from one side, stepping always in the same tracks, and leave as little sign as possible that you have been there. If snow has fallen since the fox was last there, take a meal sieve and sift a little snow over the heap and over your own footprints for some distance back from the bed. Now I expect you will catch him, but if he smells the trap and won't come to the bed while it is there, take it out and clean it better, and melt some beeswax, and with a feather smear it all over the trap and chain. Now put it in the bed again, and you will be quite sure of the fox.

Here is another way: Select a rise of ground in a back field, make a bed of ashes or mould large enough to receive your steel trap level with the surface. Bait with cheese or scraps from lard. When the fox takes the bait, set your

trap as follows: Turn the springs toward the jaw that holds up the pan of the trap. Put the trap low enough when covered to be level with the surface. Put hay chaff inside of the jaws level with the pan. Then put a paper over the pan reaching to the inside of the jaws. Then cover with ashes or mould, and make the bed look as it did before the trap was set. Bait with cheese or scraps, or fresh meat of any kind.

Another way is to bury the entrails of an animal in mellow ground, making a little hill over them. Set your trap just at the edge of the hill in the dirt, always using the chaff and paper, and keep your trap clean from rust. Scent with musk or lavender water or fox scent.

Here is another from an old trapper in the state of Ohio: First prepare the trap, then hold it in the smoke of burning oat straw until it begins to sweat. Then dry it off with a woollen cloth, and throw it into spring water for one or two hours. After that, dry it off without letting it rust. Make the bed with clover or buckwheat chaff, making it as hard as possible with the hand, except a hole in the center for the trap, which set in and cover lightly with chaff, or, after the trap is set, take a feather and sprinkle a little oil of amber very lightly over the bed.

Another common-sense way of catching the fox is to bait him as usual, and clean your trap as clean as possible, not only from rust and dirt (these should not be in your trap any way), but of all human scent, such as it would get by handling with your naked hands, or in any way touching your body. This is what the fox becomes cunning about; but a trap washed out in ashes and water, laid by until it is dry, and then handled with a pair of very clean gloves, will no more scare a fox than would so much stone covered up. Don't spit about the bed, nor track about it, and when you have caught a fox, don't handle the trap with your bare hands, and you may catch a dozen without more cleaning.

THE RACCOON

The raccoon is about twenty-six inches long; the tail eight inches; the weight twenty to twenty-five pounds. The head is rather round, the nose sharp and flexible, and the expression of the face cunning, sly, and foxy. The feet are plantigrade, and hence the animal was considered by some early naturalists as a small bear. The general color of the fur is blackish gray, but paler on the under part of the body; the



Raccoon

point of the nose and soles of the feet black, and the eyes black. Around the face is a circle of yellowish-white hair. The tail is marked with five or six black rings, and is tipped with black. The body is stout, the back arched upward, the legs rather long, and the claws strong.

The favorite haunts of the raccoon are solitary forests upon marshy ground, intersected by streams. His food consists of birds' eggs, the eggs of the soft-shelled turtle, frogs, mussels, and various other small animals. Along the coast in the Southern States, he finds a species of oyster in which he delights; though we are told that he sometimes pays dear for the whistle, as he gets his paw caught by a fixed shell, and, unable to escape, he is drowned by the returning tide. Sometimes he creeps silently in the sedges like a cat, snapping up a duck that comes within his reach. He climbs trees

with ease, and not unfrequently robs the nests of the woodpecker, by putting his long paws into the holes which this bird has chiseled in the limb of a dry tree. When the corn is in the milk, he steals at night into the fields and feasts himself to satiety, reckless of the damage done to the crop, and the ire of the planter when he discovers the theft. His conical head and sharp, flexible nose are not made in vain, for these enable him to pry into corners and crevices for spiders, worms, and the larvæ of various insects, of which he is very fond.

Thus the raccoon is an animal of large resources and marked character. He goes prowling about as well by night as by day. He is a fisher, a hunter, a trapper, a reaper, or a fly-catcher, as occasion may require. He is instinctively cunning as a fox, inquisitive and meddlesome as the monkey, greedy as a bear, sly as a cat. In northern climates, on the approach of winter, he retires to his home and sleeps like the bear till spring, or only goes abroad occasionally in fair weather. At the south, he is active during the year. His nest is usually made in the hollow trunk of a tree. From four to six young ones are produced at a birth, this event taking place in May. The young coons are half as big as a rat, and utter a plaintive wail like an infant.

The hunting of the raccoon is a favorite sport in some parts of the country. The hunts usually take place by moonlight, dogs being used to tree the game. Great experience is required, as these creatures are nimble and subtle, and often baffle even the most skillful hunters. Many of these animals are caught in various kinds of traps baited with honey, sugar, berries, eggs, frogs, corn, fish, birds, etc., or anything which they are fond of, in season or out. They den up in holes about rocks or in hollows of trees, mating in March, becoming prime about the middle of November or the early part of December.

In its gait and general carriage is visible an admixture of the plantigrade with the digitigrade; for when it stands or sits it plants the entire sole of its foot upon the ground, but when it runs in haste it only touches the earth with the tips of its toes. Generally, it is nocturnal in its habits,

passing the whole of the daytime in sleep, snugly curled up in the warm blanket of its own rich fur, and slumbering heavily with its head sunk between its hinder limbs.

As is indicated by the peculiar nature of its teeth, the raccoon is capable of feeding on animal or vegetable food, but seems to prefer the latter. Indeed, there seem to be few things which the raccoon will not eat. One of these animals ate a piece of cedar pencil which it snatched out of my hand, and tried very hard to eat the envelope of a letter on which I was making notes. Not succeeding in the attempt, it consoled itself by tearing the paper into minute morsels, employing teeth and paws in the attempt. It did its best to get a ring off my finger, by hitching one of its crooked claws into the ring and pulling with all its strength, which was very considerable in proportion to the size of the animal. Its brown eyes lighted up with animation when engaged in play, and it was very fond of pushing its paw through the bars of its cage, in order to attract attention.

In its native state it is a great devourer of oysters, crabs, and other similar animals, displaying singular ingenuity in opening the stubborn shells of the oysters, or in despatching the crabs without suffering from their ready claws. Its oyster-eating propensities have been questioned, but are now clearly proven. The sand and soil that fringe the oyster-beds are frequently seen to be covered with the footmarks of this animal.

It is always fond of water, drinking largely, and immersing its food, so as to moisten it as much as possible. When engaged in this curious custom it grasps the food in both its forepaws, and shakes it violently backward and forward in the water. On account of this remarkable habit it has been dignified with the title of Lotor, a washer. The German naturalists term it Wasch-Bar, or Washing Bear. In captivity it is anything but abstemious, and rejects plain water, provided that it can be furnished with fermented liquids, strong and sweet. If taken young, it is easily made tame, but is the booziest or **worst toper** living if he can get any liquor that is sweet and strong. He furthermore relates that this animal is in the habit of catching crabs by putting

The New "Stop Thief" Wire Trap.



This illustration shows how the trap catches around the animal's neck and chokes it to death.

Above traps are especially designed for Gophers, Squirrels, Mink, Rabbits, Skunk, Raccoon, Badger, etc, etc.



Trap Set at Den of Skunks.

As these animals are unsuspecting no covering is needed over traps; as he enters he is caught and killed by trap choking and holding him.

its foot into their holes, and dragging out the crab as soon as it seizes the intruding limb.

Roving at night through the woods, and being gifted with singular subtlety as well as agility, it is frequently chased by the residents, who thing a 'coon hunt to be one of the most exciting of sports. Certainly, to judge from the animated descriptions of such scenes, the whole affair must be marvellously picturesque to the eye as well as exciting to the mind. The usual plan of hunting the 'coon is to set an experienced dog on its trail, and to chase it until it takes refuge in a tree. A blazing fire of pine-chips is then built under the tree, which illuminates its branches and renders the smallest leaf perceptible. A good climber then ascends the tree, and speedily dislodges the concealed animal.

In size, the raccoon equals a small fox, to which animal it bears a slight external resemblance.

HOW TO CATCH THE RACCOON

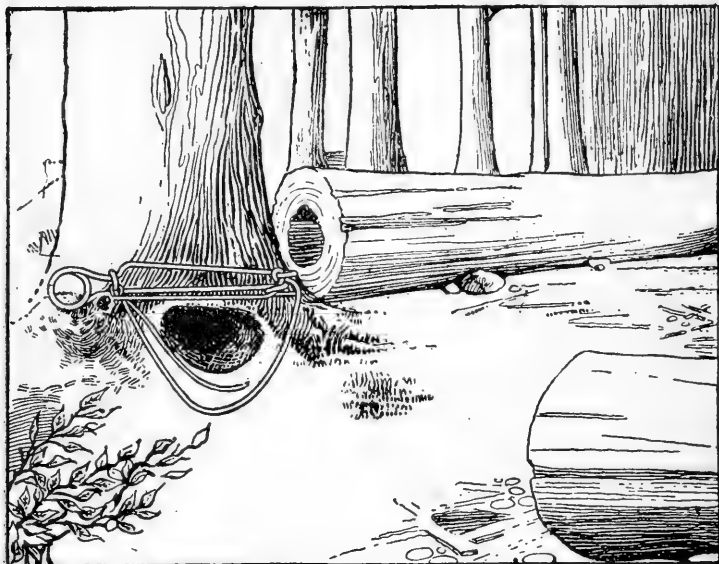
Although he is a nocturnal animal, yet when routed in the day time he travels at a great rate.

You may scent the trail leading from one trap to another as you do for the marten, and the same trap will answer for both animals, and you will sometimes catch a coon or a mink.

The raccoon is well known in the greater part of the south, and the raccoon hunts form the burden of many laughable stories. He has a bloodthirsty and vindictive spirit; he slaughters the tenants of the poultry-yard with indiscriminate ferocity, and this in many cases leads to his own destruction, by exciting the vengeance of the farmer.

Being peculiarly fond of sweet substances, the raccoon is occasionally very destructive to fields of Indian corn. While the ear of the corn is still young, soft and tender, in the milk, and is very sweet, it is then eagerly sought by the raccoon. A family of them, five or six in number, frequently enter fields of corn, and in one night do considerable damage, both by the quantity of grain they consume, and the number of stalks they break down.

The New "Stop Thief" Wire Trap.



It is Set at the Holes of Animals; Dens, etc.,



This illustration shows the trap concealed. A coon is crossing the log—smells the decoy—His attention is arrested he turns back to investigate.

The raccoon is an excellent climber, and his strong, sharp claws effectually secure him from being shaken off the branches of trees. In fact, so tenaciously does this animal hold to any surface upon which it can make an impression with its claws that it requires a considerable exertion of a man's strength to drag him off, and as long as a single foot remains attached, he continues to cling with great force. The conical form of the head, and the very pointed and flexible character of the muzzle or snout are of great importance in aiding the raccoon to examine every vacuity and crevice to which he gains access; nor does he neglect any opportunity of using his natural advantages, but explores every nook and corner with the most persevering diligence and attention, greedily feeding on spiders, worms or other small insects which are discovered by his scrutiny. Where the opening is too small to give admittance to his nose, he employs his fore paws and shifts his position, or turns his paws sidewise, in order to facilitate their introduction and effect his purpose. This disposition to feed on the grubs or larvæ of insects must render this animal of considerable utility in forest lands, in consequence of the great numbers of injurious and destructive insects he consumes. He is also said to catch frogs with considerable address, by slyly creeping up, and then springing on them with both paws.

There are many caught and killed about cornfields, but the fur is then not very good. Later in the fall, and during the winter and spring, up to the middle of spring, it is excellent, and when the pelts are well dressed they make good mittens; putting a whole skin in each one they reach up to the elbows. In the spring of the year, when the snow begins to go off the ground, the raccoon is easily found. On a warm night they come out from their hollow trees, make a circuit, and return on their back track. By watching for their return, you are quite sure to find them, one, two, three or four altogether. When you go out to hunt them, take an axe with you, and fell some hollow tree in which they have their nest, and see what fun you will have in trying to outrun the little ring-tails.

Later in the season, when the ground is bare, and the ice is out of the creeks and ponds, they travel along the muddy shores in search of frogs, of which they are very fond. Take a trap and set it on the edge of the water. Fasten it well, and bait it with fish or fowl of any kind, placing the bait above the trap as for a mink, or behind the trap, in such a way that the coon can only get at it by going over the trap. Scent the bait with oil of anise. You may also catch him with a pole trap, baited with frogs, fish or a bit of partridge. When you find coon tracks in the mud, you may set your trap with a little oil of anise rubbed on the under side of the pan, covering it up with leaves or moss. The first one that comes along will stick his fore paws into the trap, feeling for the bait.



WEASELS, SKUNKS, BADGERS, MARTEN, ETC., ETC.

Next in order to the dogs, is placed the large and important family of the Weasels, representatives of which are found in almost every portion of the earth. There is something marvel-



The Badger

lously serpentine in the aspect and structure of the members of this family—the Mustelidæ, as they are called, from the Latin word *mustela*, which signifies a Weasel. Their extremely long bodies and very short legs, together with the astonishing perfection of the muscular powers, give them the capability of winding their little bodies into the smallest possible crevices, and of waging successful battle with animals of twenty times their size and strength.

First on the list of Weasels are placed the agile and lively Martens, or Marten-Cats, as they are sometimes termed. Two species of Martens are generally admitted into catalogues, although the distinction of the species is even as yet a mooted point. The chief distinction between the pine and the beech Martens is the different tint of the throat, which in the former animal is yellow, and in the latter is white. But it is said by many observers that this variation of the tint is not of sufficient importance to warrant a separation of the species, and that the different sexes of the same species are marked by varying depth of color in the throat, the male possessing a darker tinge of yellow than the female. There is also a slight difference of size between the two sexes.

The Pine Marten is so called because it is generally found in those localities where the pine-trees abound, and is in the habit of climbing the pines in search of prey. It is a shy and wary animal, withdrawing itself as far as possible from the sight of man; and although a fierce and dangerous antagonist when brought to bay, is naturally of a timid disposition, and shuns collision with an enemy.



Ermine or White Weasel.

It is a tree-loving animal, being accustomed to traverse the trunks and branches with wonderful address and activity, and being enabled by its rapid and silent movements to steal unnoticed on many an unfortunate bird, and to seize it in its deadly grip before the startled victim can address itself to flight. It is a sad robber of nests, rifling them of eggs and young, and not unfrequently adding the parent birds to its list of victims.

The fur of the Pine Marten is rather valuable, especially if the animal be killed in the winter. A really fine skin is but little inferior to the celebrated sable, and can hardly be distinguished from it by experienced eyes. It is thought not to be so prolific an animal as the Beech Marten, seldom producing above three or four at birth, while the latter animal has been known to nurture six or seven young at the same time. If this circumstance be generally true, it goes far towards proving that the beech and pine marten are really distinct animals.

The head of this creature is smaller than that of the beech marten, and the legs are proportionately larger.

The length of the pine marten is about eighteen inches, exclusive of the tail, which measures about ten inches. The tail is covered with long and rather bushy hair, and is slightly darker than the rest of the body, which is covered with brown hair. The tint, however, is variable in different specimens, and even in the same individual undergoes considerable modifications, according to the time of year and the part of the world in which it is found. It has rather a wide range of locality, being a native of a very large portion of northern America.

The Beech Marten seems to be of rather more frequent occurrence than the pine marten, from which animal it may be distinguished by the white tint of the fur on its throat and the upper portion of its breast. On account of this circumstance, it is sometimes called the white-throated marten. A slight yellow tinge is sometimes observed on its throat. There are several names by which this animal is known, such as the marten, the marten and the stone marten.

In its destructive habits and its thirst for blood, it resembles the animal which has already been described.

One of the most highly-valued of the weasels is the celebrated sable, which produces the richly tinted fur that is in such great request. They are very closely allied to the martens that have already been described, and are supposed by some zoologists to belong to the same species. Besides the well-known *martes zibellina*, a North American species as known, together with another which is an inhabitant of Japan. These two creatures, although they are very similar to each other in general aspect, can be distinguished from each other by the different hue of their legs and feet: the American sable being tinged with white upon those portions of its person, and the corresponding members of the Japanese sable being marked with black.

The sable is spread over a large extent of country, being found in Siberia, Kamtschatka, and in Asiatic Russia. Its fur is in the greatest perfection during the coldest months of the year, and offers an inducement to the hunter to brave

the fearful inclemency of a northern winter in order to obtain a higher price for his small but valuable commodity. A really perfect sable skin is but seldom obtained, and will command an exceedingly high price.

In order to obtain these much-prized skins, the sable-hunters are forced to undergo the most terrible privations, and often lose their lives in the snow-covered wastes in which the sable loves to dwell. A sudden and heavy snow-storm will obliterate in a single half-hour every trace by which the hunter had marked out his path, and, if it should be of long continuance, may overwhelm him in the mountain "drifts" which are heaped so strangely by the fierce tempests that sweep over those fearful regions. Should he not be an exceedingly experienced hunter, possessed of a spirit which is undaunted in the midst of dangers, and of a mind which is stored with the multitudinous precepts of hunters' lore, he is certain to sink under the accumulated terrors of his situation, and to perish by cold and hunger in the midst of the snow-sea that rolls in huge white billows over the face of the country.

At the best, and when he meets with the greatest success, the privations which he is called upon to undergo are of the most fearful character, and he rarely escapes without bearing on his person the marks of the terrible labor which he has performed.

The sables take up their abode chiefly near the banks of rivers and in the thickest parts of the forests that cover so vast an extent of territory in those uncultivated regions. Their homes are usually made in holes which the creatures burrow in the earth, and are generally made more secure by being dug among the roots of trees. Sometimes, however, they prefer to make their nests in the hollows of trees, and there they rear their young. Some authors, however, deny that the sable inhabits subterranean burrows, and assert that its nest is always made in a hollow tree. Their nests are soft and warm, being composed chiefly of moss, dried leaves, and grass.

Their food is said to partake partially of a vegetable and partially of an animal character, according to the season of the year. In the summer time, when the hares and other animals are rambling about the plains and forests, the sable

takes advantage of their presence, and kills and eats them. But when the severity of the winter frosts has compelled these creatures to remain within their domiciles, the sable is said to feed upon the wild berries that it finds on the branches. The hunters assert that the sable is not content to feed only on the hares and such like animals, which constitute the usual prey of the larger weasels, but that it is in the habit of killing and devouring the ermine and the smaller members of the weasel tribe. Even birds fall victims to these agile and voracious animals, being often overtaken in their flight among the branches of trees by a well-aimed leap and a sharp stroke of the fore-paws.

HOW TO CATCH THE FISHER

The fisher, or black cat of our hunters, is a small, yet powerful animal, standing nearly a foot from the ground. It was formerly very abundant in the Middle States, but is now confined to the thinly settled northern districts. It is a nocturnal species, and lives chiefly on the smaller quadrupeds; but also devours frogs, fishes and serpents.



Fisher Marten.

It climbs with great ease, and takes up its abode in the trunk of a tree. The form of the body is typical; head broad, nose acute, ears about three inches from the nose, broad, rounded and distant; the fore feet are shorter than the hind ones, and the soles of both are covered with short hair; the color is grayish over the head and anterior parts of the body, dark brown or black behind.

The name of fisher, which has been censured as not applicable to the animal is, however, that by which he is best known, and which it has received from its characteristic habits. The hunters were in the habit of soaking their fish over night, and it was frequently carried off by the fisher, whose well known tracks were seen in the vicinity. While I have been engaged catching marten, having a line of wooden traps several miles long, the fisher would get upon the trail, and destroy all the traps he came to, taking the bait as he went. It brings forth two young ones at a time, annually. The hunting season for the fisher in the northern parts of Canada commences about the tenth of October and lasts till the middle of March, when the fur becomes less valuable.

After finding my marten traps torn, I had to devise some way to stop that, by capturing the fisher. I found that he would never go in at the door of the trap, but would pull up the cover, and so take the bait without being caught. I at once built a string trap, with two holes, one above the other, making two doors to enter the trap, and so arranging that when one sprung, both would spring; so that if he went in at the upper or lower door he was equally certain to be caught.

I found, however, that he always went in at the top. The fisher may also be caught with a good double spring steel trap, by using the following precaution. First bend down a small sapling, and fasten the top under a hook, previously driven in the ground for the purpose. To the end of the sapling fasten the chain of the trap, set it, and cover it up neatly with leaves or other light substance, hanging the bait about two feet above the trap, with no other possible means of getting to it but to reach up over the trap. When he is caught and twitched about, he pulls the pole from under the hook, and is jerked up into the air, trap and all. This will prevent his gnawing off his leg, which he would surely do if he had the trap to himself. About the best bait that I know of is fish, but chicken or fresh meat of any kind will do very well.

When the fisher travels he makes his tracks in the same manner as the marten, only his feet are about the

size of a fox's, and his jumps are about three feet long, unless he is hurried, when they are four or five feet long. When you see these tracks in the fresh fallen snow, make up your mind to catch the animal. It will take you all week perhaps, but then you will have the booty.

The Polecat has earned for itself a most unenviable fame, having been long celebrated as one of the most noxious pests to which the farmyard is liable. Slightly smaller than the marten, and not quite so powerful, it is found to be a more deadly enemy to rabbits, game and poultry, than any other animal of its size.

It is wonderfully bold when engaged in its marauding expeditions and maintains an impertinently audacious air even when it is intercepted in the act of destruction. Not only does it make victims of the smaller poultry, such as ducks and chickens, but attacks geese, turkeys, and other larger birds with perfect readiness. This ferocious little creature has a terrible habit of destroying the life of every animal that may be in the same chamber with itself, and if it should gain admission into a hen-house will kill every one of the inhabitants, although it may not be able to eat the twentieth part of its victims. It seems to be very fond of sucking the blood of the animals which it destroys, and appears to commence its repast by eating the brains. If several victims should come in its way, it will kill them all, suck their blood, and eat the brains, leaving the remainder of the body untouched.

Even those unpromising animals, the weasels, can be subjected to the wondrous supereminence of the human intellect. The ferret is well known as the constant companion of the rat-catcher and the rabbit-hunter, being employed for the purpose of following its prey into their deepest recesses, and of driving them from their strongholds into the open air, when the pursuit is taken up by its master. The mode in which the ferret is employed will be presently related.

Some writers have thought the ferret to be identical in species with the polecat, and have strengthened this opinion by the well-known fact that a mixed breed between those two animals is often employed by those who study the development and the powers of the ferret.

When ferrets are used for the purpose of hunting rabbits their mouths are securely muzzled before they are permitted to enter the burrows; as, if their teeth were at liberty, they would in all probability kill the first rabbit which they met, and remain in the burrow for the purpose of sucking its blood. They are purposely kept without their ordinary meals before they are taken into the field, and are therefore especially anxious to secure their prey. Several modes of muzzling the ferret are in vogue: some of them being as humane as is consistent with the act of fastening together the jaws of any animal, and others being most shamefully cruel. Not many years ago, it was the general custom to sew up the lips of the poor creature every time that it was used for hunting, and elaborate descriptions of this process are given in the sporting books of the period. Leathern muzzles are made especially for the purpose, and are the best that can be adopted; but in their absence, the ferret's mouth can be effectually closed by means of two pieces of string, one of which is placed round the neck and the other under the jaws, and the four ends tied together at the back of the neck.

Almost any ferret will enter a rabbit-burrow and drive out the inmates, for the rabbits do not even think of resisting their pursuer, and flee before him with all their might. But there are comparatively few ferrets that will venture to enter a rat-hole, especially after they have suffered once or twice from the sharp teeth of those voracious rodents. If the ferret is accustomed to chase rabbits, it becomes totally useless for the purposes of the rat-catcher, for it will not venture even to face a well-grown and vicious old rat, and much less will it dare to enter the burrow. After suffering from the bite of a rat, the ferret is seized with a very great respect for a rat's teeth, and will not willingly place itself within reach of those sharp-edged weapons. As has been graphically said by a practical rat-catcher, to force such a ferret into a rat-hole is "like cramming a cat into a boot, and as for hunting, it is out of the question."

Two kinds of ferrets are employed for the purpose of hunting game; the one, a creamy-white creature, with bright pink eyes, and the other a much darker and fiercer-looking animal, which is the mixed offspring of the polecat and the ferret.

This is the animal which is called the Polecat-ferret in the above-mentioned anecdote.

On account of its water-loving propensities, the Mink is called by various names that bear relation to water. By some persons it is called the smaller otter, or sometimes the musk otter, while it is known to others under the title of the water polecat.

The mink is spread over a very large extent of country, being found in the most northern parts of Europe, and also in North America. Its fur is usually brown, with some white about the jaws, but seems to be subject to considerable variations of tinting. Some specimens are of a much paler brown than others; in some individuals the fur is nearly black about the head, while the white patch that is found on the chin is extremely variable in dimensions. The size, too, is rather variable.

It frequents the banks of ponds, rivers, and marshes, seeming to prefer the stillest waters in the autumn, and the rapidly flowing currents in spring. As may be supposed from the nature of its haunts, its food consists almost wholly of fish, frogs, crawfish, aquatic insects, and other creatures that are to be found either in the waters or in their close vicinity. The general shape of its body is not quite the same as that of the marten or ferret; and assumes something of the otter aspect. The teeth, however, are nearer those of the polecat than of the otter; and its tail, although not so fully charged with hair as the corresponding member in the polecat, is devoid of that muscular power and tapering form, which is so strongly characteristic of the otter. The feet are well adapted for swimming, on account of a slight webbing between the toes.

There is hardly any animal which, for its size, is so much to be dreaded by the creatures on which it preys as the common weasel. Although its diminutive proportions render a single weasel an insignificant opponent to man or dog, yet it can wage a sharp battle even with such powerful foes, and refuses to yield except at the last necessity.

The proportions of the weasel are extremely small, the male being rather larger than the opposite sex. In total length, a full-grown male does not much exceed ten inches,

of which the tail occupies more than a fifth, while the female is rather more than an inch shorter than her mate. The color of its fur is a bright reddish-brown on the upper parts of the body, and the under portions are of a pure white, the line of demarcation being tolerably well defined, but not very sharply cut. This contrast of red and white renders it an exceedingly pretty little animal. The tail is of a uniform tint with the body, and is not furnished with the tuft of jetty hairs that forms so conspicuous a decoration of the stoat.

The weasel is specially dreaded by rats and mice, because there is no hole through which either of these animals can pass which will not quite as readily suffer the passage of the weasel; and as the weasel is most determined and pertinacious in pursuit, it seldom happens that rats or mice escape when their little foe has set itself fairly on their track.

Not only does the weasel pursue its prey through the ramifications of the burrows, but it possesses in a very large degree the faculty of hunting by scent, and is capable of following its prey through all its windings, even though it should not come within sight until the termination of the chase. It will even cross water in the chase of its prey. When it has at last reached its victim, it leaps upon the devoted creature, and endeavors to fix its teeth in the back of the neck, where it retains its deadly hold in spite of every struggle on the part of the wounded animal. If the attack be rightly made, and the animal be a small one, it can drive its teeth into the brain, and cause instantaneous insensibility. The gamekeeper has some reason for his dislike to the weasel, as it is very fond of eggs and young birds of all kinds, and is too prone to rob the nests of eggs or young. It is said that an egg which has been broken by a weasel can always be recognized by the peculiar mode which the little creature employs for the purpose. Instead of breaking the egg to pieces, or biting a large hole in the shell, the weasel contents itself with making quite a small aperture at one end, through which it abstracts the liquid contents.

So determined a poacher is the weasel that it has been seen to capture even full-grown birds. A weasel has been seen to leap from the ground into the midst of a covey of

partridges, just as they were rising on the wing, and to bring one of them to the earth. When the spectator of this curious occurrence reached the spot, he found the weasel in the act of devouring the bird, which it had already killed. This adventure took place about the end of the month of October. The birds were more than two feet from the ground when the attack was made upon them.

Another weasel was seen to capture and kill a rook in a somewhat similar manner. The rooks had discovered the weasel in a field, and after their custom on such occasions, had gathered round it, and commenced mobbing it. Suddenly, just as one of the rooks made a lower stoop than usual, the weasel leaped at its tormentor and dashed it to the ground. The dissonant cries of the rooks as they scolded the weasel attracted the attention of a horseman who was passing by, who arrived at the spot just as the bird had been killed. It lay on the ground dead, from a wound in its neck; its murderer having taken shelter in a neighboring hedge. As soon, however, as the horseman withdrew, the weasel emerged from its hiding-place and dragged the dead rook under the shelter of the bushes.

At all times the weasels are sufficiently precarious in their temper, and extremely apt to take offence; but when a mother weasel imagines that her little ones are likely to be endangered by man or beast, she becomes a really dangerous opponent. Even so small an animal is capable of inflicting a very severe bite, and when she is urged by the desperate courage which is implanted in the breast of every mother, is not unlikely to succeed in her object before she is repelled. Moreover, she does not trust to her sole efforts, but summons to her assistance the inhabitants of the same little community, and with their aid will drive away an unarmed man from the neighborhood of their habitations. Several such instances are on record, in one of which a powerful man was so fatigued with his exertions in keeping off his assailants, that he would soon have sunk under their united attacks had he not been rescued by the timely assistance of a horseman who happened to pass near the spot, and who came to the rescue with his whip. Urged by their bloodthirsty instinct,

the weasels all directed their efforts to the throat, and made their attacks in such rapid succession that their opponent was solely occupied in tearing away the active little creatures and flinging them on the ground, without being permitted the necessary leisure for killing or maiming his pertinacious antagonists.

The fur of the weasel is sometimes powerfully influenced by the effect of the severe cold, and has been known to become nearly white during a sharp and protracted frost. It is worthy of notice that, in such cases, the tip of the tail does not partake of the general change of tint, but retains its bright red hue, precisely as the tail of the ermine retains its jetty blackness while the remainder of the fur is either white or cream-colored. Mr. Bell remarks that he has seen a weasel which had retained its wintry whiteness in two spots on each side of the nose, although the remainder of the fur had returned to its usual reddish hue during the summer months. This specimen was captured in the extreme north of Scotland. While clad in the white garments of winter, in which state it is frequently found in Siberia, it is the animal which was called *Mustela nivalis*, or snowy Weasel, by Linnæus. It is rather variable in tint, independently of the influence of climate; some individuals being less brightly tinged with red than others, while occasional specimens are found in which the fur is of an exceedingly dark brown.

To persons who have had but little experience in the habits of wild animals, it is generally a matter of some surprise that the celebrated Ermine fur, which is in such general favor, should be produced by one of those very animals which we are popularly accustomed to rank among "vermin," and to exterminate in every possible way. Yet so it is. The highly-prized ermine and the much-detested stoat are, in fact, one and the same animal, the difference in the color of their coats being solely caused by the larger or smaller proportion of heat to which they have been subjected.

In the summer time, the fur of the stoat—by which name the animal will be designated, whether it be wearing its winter or summer dress,—is not unlike that of the weasel, although the dark parts of the fur are not so ruddy, nor the

light portions of so pure a white, as in that animal. The toes and the edges of the ears are also white.

The change of color which takes place during the colder months of the year is now ascertained, with tolerable accuracy, to be caused by an actual whitening of the fur, and not by the gradual substitution of white for dark hairs, as was for some time supposed to be the case.

The hairs are not entirely white, even in their most completely blanched state, but partake of a very delicate cream-yellow, especially upon the under portions, while the slightly bushy tip of the tail remains in its original black tinting, and presents a singular contrast to the remainder of the fur. In these comparatively temperate latitudes, the stoat is never sufficiently blanched to render its fur of any commercial value, and the hair appears to be longer, thicker, and whiter in proportion to the degree of latitude in which the animal has been taken. As may be supposed, from the extreme delicacy of the skin in its wintry whiteness, the capture of the stoat for the purpose of obtaining its fur is a matter of no small difficulty. The traps which are used for the purpose of destroying the stoat are formed so as to kill the animal by a sudden blow, without wounding the skin; and many of the beautiful little creatures are taken in ordinary snares.

The object of the whitened fur of the stoat is popularly supposed to be for the purpose of enabling the animal to elude its enemies by its similarity to the snow-covered ground on which it walks, or to permit it to creep unseen upon its prey. It seems, however, that many animals partake of the same tinting, some of which, such as the polar bear, are so powerful, that they need no such defense against enemies, and so active in the pursuit of the animals on which they feed, that their success in obtaining food seems to depend but little upon color. The Arctic fox, which has already been mentioned, and the lemming, which will be recorded in a future page, are examples of this curious mutation of color.

Putting aside for the present the mode in which the fur changes its color, the real object of the change appears to

be for the purpose of defending the wearer against the intense colds which reign in those northern regions, and which, by a beautiful provision, are obliged to work the very change of color which is the best defence against their powers. It is well known that black substances radiate heat more effectually than objects which are bright and polished. This fact is popularly shown in the bright teapots with which we are so familiar, and which are known, by practical experience, to retain the heat for a much longer period than if their surface had been roughened or blackened.

The reader will not fail to remark a certain coincidence between the snowy hairs that deck the frosty brows of old age with a reverend crown and the white fur that adds such beauty to the frost-beset stoat. It may be that the energies of the animal are forced, by the necessity which exists for resisting the extremely low temperature of those icy regions, to concentrate themselves upon the vital organs, and are unable to spare a sufficiency of blood to form the coloring matter that tinges the hair. There is evidently an analogy between the chilly feeling that always accompanies old age and the frosty climate that causes the stoat's fur to whiten.

It is well known that examples of albinos occur in almost every kind of quadruped and bird, and it seems probable that the deprivation of color is in very many cases owing to the weak constitution of the individual. One of these albinos was a bird, which was caught and tamed, and although it was of a cream color when it was captured, yet assumed the usual dark plumage of the species at the first moulting season that occurred after its capture. As the bird also appeared to be much more healthy and lively than when it was clad in white feathers, it seems likely that the albino state may have been caused by weakness of constitution.

It is clear that, whatever may be the immediate cause of the whitening of the hair, the change of tint is caused by the loss of the coloring matter which tinges the hair, and that there must be some connection between the frost-whitened stoat, and the abnormal whiteness of various albinos.

Where the lowest temperature is considerably above that

of the ordinary wintry degrees, the stoat is very uncertain in its change of fur, and seems to yield to or to resist the effects of the cold weather according to the individuality of the particular animal.

In the autumn, when the stoat is beginning to assume its wintry dress, and in the spring, when it is beginning to lose the snowy mantle of the wintry months, the fur is generally found to be marked with irregular patches of dark and white spots, the sides of the face appearing to be especially variable in this respect. Sometimes the animal resists the coldest winters, and retains its dark fur throughout the severest weather, and it sometimes happens that a stoat will change its fur even though the winter should be particularly mild.

As, in the former of these examples, the weather is said to have been extremely wet, it may be presumed that the moisture of the atmosphere and ground may have some connection with the whitening of the hair. On account of the better radiating powers of dark substances, the dew or general moisture is always found to be deposited in greater quantity on dark or dull, than on white or polished substances. Any one may easily prove this fact, by watching the effects of the dew on a white and a red rose growing in close proximity to each other.

The stoat is considerably larger than the weasel, measuring rather more than fourteen inches in total length, of which the tail occupies rather more than four inches. There is, however, considerable difference in the size of various individuals.

It is a most determined hunter, pursuing its game with such pertinacious skill that it very seldom permits its intended prey to escape.

Although tolerably swift of foot, it is entirely unable to cope with the great speed of the hare, an animal which frequently falls a victim to the stoat. Yet it is enabled, by its great delicacy of scent and the singular endurance of its frame, to run down any hare on whose track it may have set itself, in spite of the long legs and wonderful speed of its prey. When pursued by a stoat, the hare does not seem to put forward its strength as it does when it is fol-

lowed by dogs, but as soon as it discovers the nature of its pursuer, seems to lose all energy, and hops lazily along as if its faculties were benumbed by some powerful agency. This strange lassitude, in whatever manner it may be produced, is of great service to the stoat, in enabling it to secure an animal which might in a very few minutes place itself beyond the reach of danger, by running in a straight line.

Birds' nests of all kinds are plundered by this incorrigible poacher, for its quick eye and keen nose enable it to discover a nest, be it ever so carefully hidden; its agile limbs and sharp claws give it the power of climbing any tree-trunk, and of clinging to any branch which will bear the weight of a nest and eggs; while its lithe and serpent-like body enables it to insinuate itself into any crevice that is sufficiently large to afford ingress and egress to the parent birds. The pheasant and partridge are said to be sad sufferers from the stoat, which is mercilessly slain by the keeper with the aid of traps or gun, the former being the preferable mode of destroying "vermin." The traps in which stoats are to be caught are most ingeniously placed in certain tempting "runs" to which the stoat, being a dark-loving animal, is sure to be attracted. For several days the baits are laid on the traps, which are left unset, so that the stoats find out the locality, and think that they have fallen upon a most hospitable ground. When they have accustomed themselves to eat the baits with impunity, the keeper sets the traps, and immolates the hapless visitors.

Although the stoat is so formidable an enemy to rats and mice, and destroys annually such numbers of these destructive animals, it sometimes happens that the predaceous animal finds its intended prey to be more than its match, and is forced ignominiously to yield the contest. One of these animals was seen in chase of a rat, which it was following by scent, and at a great pace. After a while, the stoat overtook the rat, and would have sprung upon her, had not its purpose been anticipated by a sudden attack from the rat, which turned to bay, and fiercely flung herself with open jaws on her pursuer. The stoat was so startled at

so unexpected a proceeding, that it fairly turned tail and ran away. The rat now took up the pursuit, and chased the stoat with such furious energy that she drove her enemy far from the place. It is probably that the rat had a young family at hand, and was urged to this curious display of courage by the force of her maternal feelings.

The stoat is, like the weasel, possessed of a powerful and exceedingly unpleasant odor; yet even this disagreeable accompaniment does not always suffice to preserve it from being killed and eaten by predaceous animals more powerful than itself. Even so fastidious an animal as the domestic cat has been known to capture a stoat, to eat part of it herself, and to distribute the remainder to her kittens, who partook of the powerfully scented food without manifesting any reluctance.

THE WOLVERINE.

The wolverene, more popularly known by the name of the glutton, has earned for itself a world-wide reputation for ferocity, and has given occasion to some of the older writers on natural history to indulge in the most unshackled liberty of description.

Voracious it certainly is, having been known to consume thirteen pounds of meat in a single day, and it is probable that if the animal had been living in a wild state it could have eaten even a larger amount of food. It was said by the older naturalists to prey upon deer, which it killed by cunningly dropping on the ground a heap of the moss on which the deer feeds, and then climbing upon a branch which overhung the spot. As soon as the deer passed beneath the tree, the glutton was said to leap upon its shoulders, and to cling there until it had brought the deer to the ground. This and similar tales, however, rest on no good foundation.

It is known that the glutton feeds largely on the smaller quadrupeds, and that it is a most determined foe to the beaver in the summer months. During the winter it has little chance of catching a beaver, for the animals are quietly

ensconced in their home, and their houses are rendered so strong by the intense cold that the glutton is unable to break through their ice-hardened walls.

The wolverene is an inhabitant of Northern America, Siberia, and of a great part of Northern Europe. It was once thought that the glutton and the wolverene were distinct animals, but it is now ascertained that they both belong to the same species.

The general aspect of this animal is not unlike that of a young bear, and probably on that account it was placed by Linnæus among the bears under the title of *Ursus luscus*. The general color of the wolverene is a brownish-black; the muzzle is black as far as the eyebrows, and the space between the eyes of a browner hue. In some specimens, a few white spots are scattered upon the under jaw. The sides of the body are washed with a tint of a warmer hue. The paws are quite black, and the contrast between the jetty fur of the feet and the almost ivory whiteness of the claws is extremely curious. These white claws are much esteemed among the natives for the purpose of being manufactured into certain feminine adornments.

The paws are very large in proportion to the size of the animal, and it is supposed that this modification of structure is intended to enable the wolverene to pass in safety over the surface of the snow. Indeed, the feet are so large that the marks which they leave on the snow are often mistaken for the footprints of a bear. As the tracks of the wolverene are often mixed with those of the bear, it is evident that the latter animal must often fall a prey to the former during the winter months. When the animal which it kills is too large to form a single meal, the wolverene is in the habit of carrying away the remains, and of concealing them in some secure hiding place, in readiness for a second repast.

The eyes of the wolverene are small, and of a dark brown, and are not remarkable for their brilliancy.

In its native country, the animal is detested by the hunters and trappers, whether they belong to Europe or America. For the wolverene is in the habit of following the sable-hunters on their rounds, and of detaching the baits from the

traps, thereby rendering the whole circuit useless. If a sable or marten should happen to be entrapped, the wolverene does not eat the dead animal, but tears it out of the trap and carries it away. In America, it is specially obnoxious to the hunters, because its fine sense of smell enables it to discover the storehouses of provisions—"caches," as they are technically termed—which the provident hunters lay by in order to fall back upon in case of bad success. If it should unfortunately discover one of these repositories, it sets itself determinately to work, tears away all obstacles, and does extreme damage to the provisions, by eating all the meat, and scattering on every side all the vegetable food.

In captivity, its greatest dainty is said to be the body of a cat, for which strange diet it will leave every other kind of food.

The wolverene is not a very prolific animal, as it seldom produces more than two at a birth. The maternal residence is generally placed in the crevice of a rock, or in some secluded situation, and the young wolverenes make their appearance about May.



The Trapper's Wagon Outfit used where a line of
Traps covers many miles

THE SKUNK

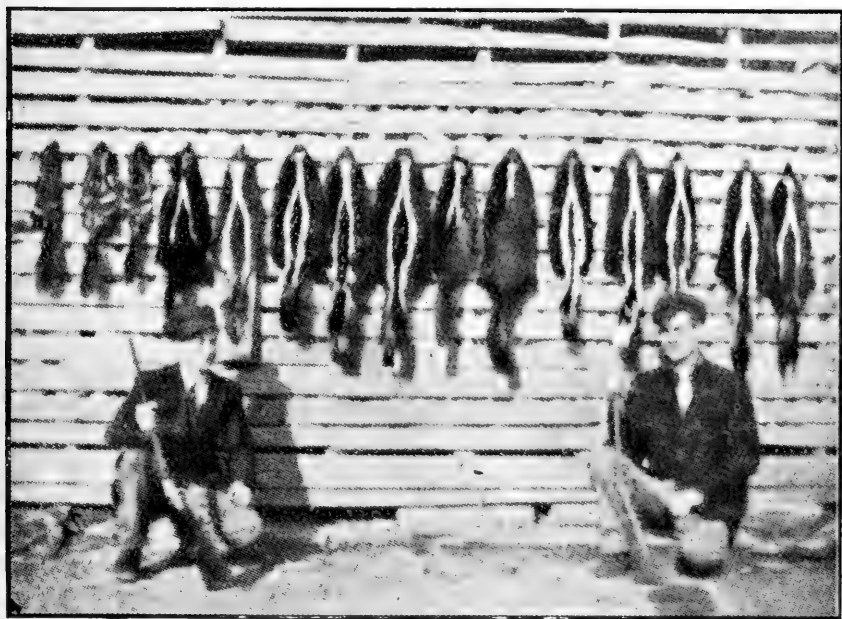
The skunk resembles the badgers in being nearly plantigrade, and having the anterior claws long and adapted for digging. There is a similarity also in the distribution of the colors, the dark shades forming the ground, and the light ones the markings. The hair of the body is long, and still longer on the tail, which being carried erect, has a plume-



Skunk

like appearance. Some of the species burrow in the ground, and others live in the fissures of rocks, several of them often associating together. They subsist chiefly on birds' eggs, insects, small quadrupeds, and poultry; they also add frogs, mice, and lizards to their bill of fare when opportunity offers. Their size is about that of the badger. They move slowly, and seldom attempt to escape from man by flight. The form is elegant, and the colors, disposed in longitudinal bands, are strikingly contrasted. These circumstances, with the long, flowing hair, would give these animals a beautiful appearance, were not all agreeable associations rendered impossible by their abominable stench. The great distinction of the genus is the possession of two glands beneath the anus, from which they eject, to a considerable distance, a liquid possessing the revolting odor of the polecat, with a suffocating and overpowering smell of garlic. This is alike to man and animals. Dogs retreat from this abominable

liquid, vomiting and rolling themselves, as if in agony, on the earth, and it is said even cattle bellow with distress when the air is strongly impregnated with it. A skunk will taint the atmosphere for half a mile in every direction, and clothes infested by the liquid are ruined, as they never part with the disgusting smell. This gift is the animal's shield and buckler, and nature, in her infinitely diversified arts of defense, appears nowhere—not in trenchant teeth, or rending claws; not in overpowering strength, or ferocity,



Some Good Work with Bait Scent.

or even deadly venom—to have provided any creature with more effective protection than is bestowed by this syringe upon the skunk.

The *Enfant du diable* has a body about seventeen inches long, with a tail, including the long hair, twelve inches. The head is small, the forehead rounded, the body long, fleshy, and widening towards the hips; fur long and coarse, with long, glossy hairs intermixed; eyes small, ears short and

rounded; feet broad, and nails of the fore-feet strong, curved and sharp. The two anal glands are situated on each side of the rectum; the sack is supposed to contain about three drams of the offensive liquid. When this is ejected, the tail is carried forward and nearly laid on the back. An experienced person, perceiving this sign of preparation, is always careful to put himself instantly out of shooting distance. It is said that the scent is much stronger if the ejection takes place when the animal is irritated, and that it is also stronger at night than in the day-time. At night the liquid has a luminous appearance, and a stream of it has been compared to a stream of phosphoric light. It possesses a very acrid quality, and dogs and persons into whose eyes it has been thrown have been rendered blind.

The species vary much in the markings; indeed, as in the case of striped grasses, it is difficult to find two precisely alike. In general, the color is a blackish brown, with a narrow stripe of yellowish white along the nose to the head; a large patch of white on the nape of the neck, and extending downward in a stripe on each side of the back, and a stripe of white on each side of the tail for three-fourths of its length. The tail is often tipped with white. But as we have said, these markings are variously modified. It is believed that when both parents are alike in color and markings, the young ones are similarly colored; but if the parents are dissimilar, the offspring is diversified.

The skunk is a prolific animal, bringing forth from four to eight at a birth. Sometimes as many as fifteen skunks have been found in one burrow. During the winter, in the cold parts of the country, these animals keep close in their burrows, in a dozing but not torpid state. At the south, they are active the year round. They are cleanly in their habits, and never suffer themselves to be soiled by their own effluvia any more than the rattlesnake by his own venom. This is a common animal in nearly all the Atlantic States; depending upon its peculiar battery for defense, it is often seen walking slowly along, its tail erect, with an air of conscious security or impudent defiance, and if it perceives a man it does not always take the trouble to get out of his way; the man is most likely to beat a retreat; indeed, a brave man is quite

as likely to run from a skunk as a lion. The fetid liquid is ejected in small streams, sometimes to the distance of fourteen feet, and usually with great accuracy of aim. As we have stated, the odor is stronger at night than during the day.



Civet Cat.

Striped or spotted skunks in America are different from those in Europe. They are thicker and of a great many colors; not all alike, but each differing from another in a particular color. They smell like a fox, but ten times stronger. When a dog encounters them they make urine, and he will not be sweet again in a fortnight or more. The Indians love to eat their flesh, which has no manner of ill smell when the bladder is out. They are easily brought up tame.

When one of them is attacked by a dog, to appear formidable it so changes its usual form, by bristling up its hairs and contracting its length into a round form, that it makes a very terrible appearance. This menacing behavior, however, insufficient to deter its enemy, is seconded by a repulse far more prevailing; for from secret duct it emits such fetid effluvia, that the atmosphere for a large space round shall be so infected with them that men and other animals are impatient till they are quit of it. The stench is insupportable to some dogs, and necessitates them to let their game escape; others, by thrusting their noses into the earth, renew their attacks till they have killed it; but rarely care to have more to do with such noisome game, which for four or five hours distracts them. The Indians, notwithstanding, esteem their flesh a dainty; of which I have eaten and found it tasted well. I have known them brought up young, made domestic, and prove tame and very active, without exercising that faculty which fear and self-preservation perhaps only prompts them

to. They hide themselves in hollow trees and rocks. Their food is insects and wild fruit.

A dead skunk, thrown over the stockades of a trading-post produced instant nausea in several women in a house with closed doors upward of a hundred yards distant. The odor has some resemblance to that of garlic, although much more disagreeable. One may, however, soon become familiarized with it; for, notwithstanding the disgust it produces at first, I have managed to skin a couple of recent specimens by recurring to the task at intervals. When care is taken not to soil the carcass with any of the strong-smelling fluid, the meat is considered by the natives to be excellent food.

Inhaling skunk's odor has been prescribed with good effect in asthmatic affections.

TRAPPING THE SKUNK

The skunk is found in Mexico, almost throughout the United States and in the British possessions. By many he is called the polecat, but the name is erroneous. In spite of the unfortunate odor which causes man, and even beasts to avoid him, the skunk is really a pretty animal. His fur is long and glossy ("all black, with more white than black"), and he has a bushy tail, which nearly covers his back when raised and turned forward. He is a scavenger, and eats much decomposed matter; he has a dainty appetite besides, though, and preys on poultry and small animals. Turtle eggs are on his bill of fare, and the little round tracks of his chubby feet are often seen in the sand where he has searched for them. Crickets and insects, however, form the greater portion of his diet. Some say that the skunk never digs a hole for himself, but drives the woodchuck from his house with his usual defense. Though true in a measure, the skunk is a persevering digger, often digging out his own burrows, and unearthing mice, beetles, etc. The skunk leaves his burrow soon after sunset; their holes are found in fields, under fences and stone walls, and also in ledges,

and in the edge of woods. He lives only in fear of dogs, and the great horned owl, which feeds upon his flesh, seizing him at night with an iron grip. A skunk caught in a snare, or drowned when taken in a box trap, is scentless, unless having quarreled with his neighbors just before capture. The surest way of taking them is to set a No. 1 or No. 2 steel trap in their hole; scoop out a hollow to place the trap in, cover the chain and spring with soil and leaves, and stake the chain its full length away from the burrow. If the weather is very cold, the dirt will freeze, and prevent the trap from springing. The animal, when trapped, will dig up the dirt about the mouth of his hole, but keep it open to retreat in as far as the chain will allow. When a skunk is first seen in a trap, his large tail is raised over his back, and his head is placed between the fore legs; although his eyes are apparently hidden, he keeps a perfect watch of the trapper's movements. It is never advisable to shoot a skunk in the head, for, if blown to atoms, the body retains its odor. He can be secured as follows:

Slip a noose over his head, with a long pole, making no sudden movements, and run a string connecting with the snare over the limb of a tree, gradually tightening it until the skunk's hind feet are clear of the ground. Make the cord fast to any convenient object, and walk cautiously away. When the skunk is dead, you can string him to your belt without fear of his scent.

In fields it is sometimes necessary to strangle them with a noose attached to a long pole, at arm's length. It can be done successfully, though very tiring to the arms. Should a skunk be scented, sink it in a cold, swift-running stream for several days, and the greenish liquid from which the odor arises will become chilled, and float in drops on the surface of the water, leaving the fur but slightly scented. If one is quick, he can take him unawares, and snatch a trapped skunk upward by the tail, killing him by a blow on the occipital bone. We have often done so when surroundings would admit. A long chain should invariably be used, so as to give the trapper free action in suspending the skunk by the tail.

POLECAT OR WEASEL

This genus includes the weasels, with the ermine or stoat, as well as the polecat or fitchet, and the ferret; all small, but distinguished for their long, flexible bodies, and their destructive habits, surpassing even the cats in their instinct for killing other animals. All are noted for a secretion in an anal pouch, which, when they are irritated or frightened, diffuses a more or less offensive odor. They trace their prey by scent, take to the water readily, as they have semi-palmated feet, and kill by inflicting a wound in the neck. The female is commonly much smaller than the male.

This animal is stouter in proportion than either the common weasel or the ermine, and the head is broader; the nose rather pointed; ears round, and not conspicuous; neck comparatively short; tail inclining to bushy, and rather more than a third of the length of the body and head. There are two kinds of fur in this species—the short is fulvous and woolly, the long is black, brownish black, and shining. A brown color mingled with yellow, varying according to the proportions of these two sorts of fur in the individual, is the result. There are some white marks about the mouth and ears, and the parts which are darkest in color are the head, tail and feet. The length of the head and body is, seventeen inches. The anal sack, situated beneath the extremity of the rectum, contains a yellowish fetid substance of the consistence of thick cream, which has an odor inferior in intensity to that of the skunk, but still proverbial for its offensive quality.

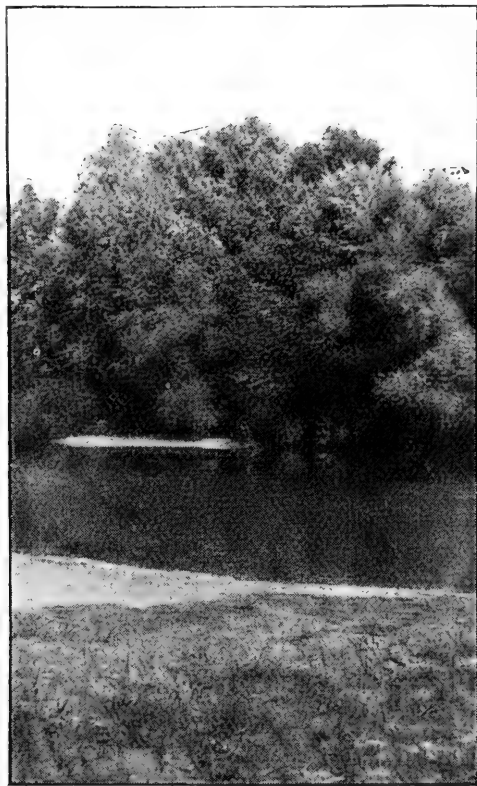
It is most destructive to the poultry-yard and the preserve; its appetite for slaughter, which seems never to be satiated as long as any living thing remains within its reach, rendering it a most ruinous neighbor to those who rear fowls or keep up a head of game. Not only the young birds fall victims to it, but the parents also; nor are even geese or turkeys safe. We have heard an instance of a hen and a whole brood of chickens being killed by one of these destroyers in a single night, and upon another occasion, seven or eight nearly full-grown turkeys. The brain and

the blood seem to be the choicest portions. The bodies of the dead are carried off to its haunts, which are generally in some corps or wood near a farm, or in the heart of a preserve, whence it issues on its deadly errand in the evening, generally soon after sunset, or when it grows dusk.

No "vermin" is placed with more satisfaction upon "the Keeper's Tree," for none commits more havoc, if so much, among the game. Beginning with the egg, it persecutes all the game birds through every period of life, and is a far more determined enemy than the stoat itself to the hare and rabbit-warren. The fox, as is well known, will do much to keep down the birds, rabbits and hares; but even this wily and powerful invader is not so mischievous as the species of which we are treating. Where a fox will kill one, a weasel will immolate ten, to say nothing of eggs; no vertebrated animal seems to come amiss to its murderous nature. Bewick relates that during a severe storm, a founmart was traced in the snow from the side of a rivulet to its hole at some distance from it. As it was observed to have made frequent trips, and as other marks were to be seen in the snow which could not easily be accounted for, it was thought a matter worthy of great attention. Its hole was accordingly examined, and five eels were discovered to be the fruit of its nocturnal excursions. The marks in the snow were made by the motion of the eels in the quadruped's mouth. In Loudon's Magazine is an account of a female polecoat that was hunted to her nest, which held five young ones in a comfortable bed of withered grass. From a side hole the narrator picked out forty large frogs and two toads alive, but capable of sprawling only, for the old polecat had stricken them all with palsy by a bite through the brain of each! Whether she had put them in this condition as a pickle, to preserve them for future use, is not known. At all events, the fact suggests the hideously destructive nature of these creatures. The nest of this species is generally made in some rabbit-burrow, in the crevice of a rock, or where the tangled herbage and brushwood overgrow loose heaps of stones; there the female drops from four to six young in May, or early in June.

The courage of the polecat is great, and none of the tribe

denominated by game-keepers "vermin" so severely tries the "pluck" of a terrier; for its flexibility, unless seized in the right place and shaken to death at once, enables it to turn and fasten upon the nose of the dog, so as to make the latter not unfrequently desist from the attack. There is good evidence that the polecat will breed with the ferret. Inferior to the fur of the sable or marten, that of the polecat is nevertheless esteemed, and a considerable exportation of the skins annually takes place from the north of Europe, under the name of Fitch.



"Twixt Woods and Waters."
(Where Prime Furs are Found.)

THE OPOSSUM

There are very few of the marsupiated animals which are more remarkable for their form, their habits, or their character, than the Opossums of America. They are nearly all admirable climbers, and are assisted in their scansorial



Opossum

efforts by their long, prehensile tails, which are covered with scales, through the interstices of which a few short black hairs protrude. The hinder feet are also well adapted for climbing, as the thumb is opposable to the other toes, so that the animal is able to grasp the branch of a tree with considerable force, and to suspend its whole body, together with the additional weight of its prey or its young.

The Virginian, or common opossum, is, as its name implies, a native of Virginia, as well as of many other portions of the United States of America. In size it equals a tolerable large cat, being rather more than three feet in total length, the head and body measuring twenty-two inches and the tail fifteen. The color of this animal is a grayish-white, slightly tinged with yellow, and diversified by occasional long hairs that are white towards their base, but of a brownish hue towards their points. These brown-tipped

The Trapper's Guide==Hints for, etc



The Otter (Fish Catching.)

Secrets of Trapping, Aids, etc.

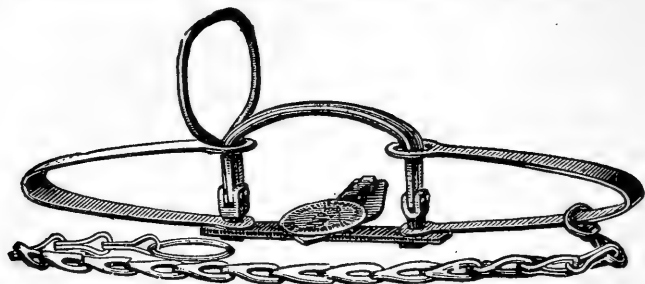
hairs are extremely prevalent upon the limbs, which are almost wholly of the brown hue, which also surrounds the eye to some extent. The under fur is comparatively soft and woolly, but the general character of the fur is harsh and coarse. The scaly portion of the tail is white.

It is a voracious and destructive animal, prowling about during the hours of darkness, and prying into every nook and corner in hope of finding something that may satisfy the cravings of imperious hunger. Young birds, eggs, the smaller quadrupeds, such as young rabbits, which it eats by the brood at a time, cotton rats, and mice, reptiles of various kinds, and insects, fall victims to the appetite of the Virginian Opossum, which is often not content with the food it finds in the open forests, but must needs insinuate itself into the poultry-yard, and make a meal on the fowls and their eggs. When it has once determined on making such a raid, it can hardly be baffled in its endeavors by any defences except those which consist of stout walls and closely-fitting doors; for it can climb over any ordinary wall, or thrust itself through any fence, so that there is but little chance of preventing it from making good its entrance into the precincts of the farm-yard.

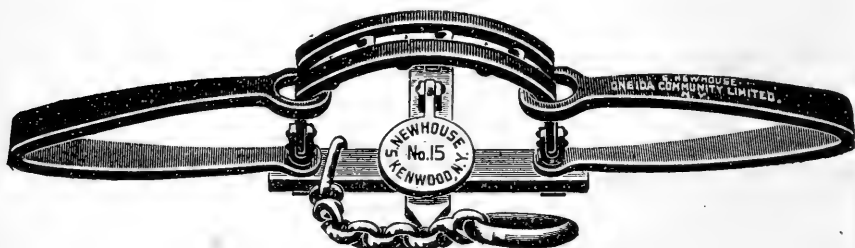
Besides the varied animal diet in which the opossum indulges, it also eats vegetable substances, committing as much havoc among plantations and fruit-trees as among rabbits and poultry. It is very fond of maize, procuring the coveted food by climbing the tall stems, or by biting them across and breaking them down. It also eats acorns, beech-nuts, chestnuts, and wild berries, while its fondness for the fruit of the "persimmon" tree is almost proverbial. While feeding on these fruits it has been seen hanging by its tail, or its hinder paws, gathering the "persimmons" with its fore-paws, and eating them while thus suspended. It also feeds on various roots, which it digs out of the ground with ease.

Its gait is usually slow and awkward, but when pursued it runs with considerable speed, though in a sufficiently clumsy fashion, caused by its habit of using the limbs of the right and left side simultaneously in a kind of amble. As, moreover, the creature is plantigrade in its walk, it may be imagined to be anything but elegant in its mode of progress

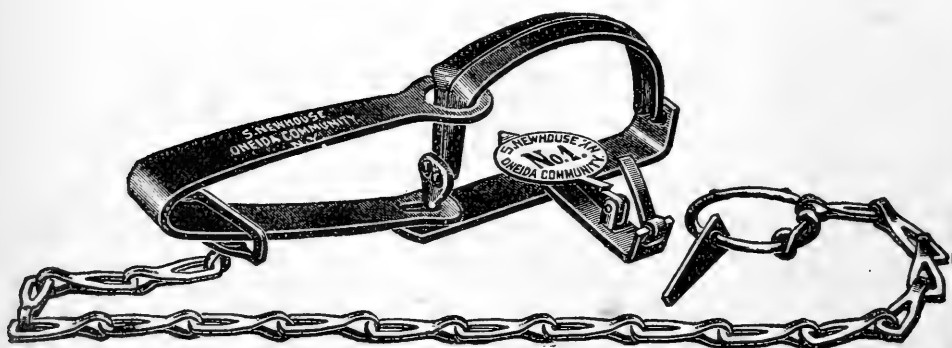
Favorite Traps and Their Uses.



"The Otter or Beaver trap with detachable Clutch."



The Bear trap, "offset and jaws"



The Muskrat Trap—This style and size used for all small animals by old trappers.

(It is used more than any other style or size.)

upon the ground. Although it is such an adept at "possum-ing," or feigning death, it does not put this ruse in practice until it has used every endeavor to elude its pursuers, and finds it has no possibility of escape. It runs sulkily and sneakingly forward, looking on every side for some convenient shelter, and seizing the first opportunity of slipping under cover.

If chased by a dog, it takes at once to a tree, and unless the dog be accompanied by its master, only climbs to a convenient resting-place, above the limit of the dog's leaping powers, and there sits quietly, permitting the dog to bark itself hoarse, without troubling itself any further about so insignificant an enemy. If, however, as is generally the case, the dog be accompanied by human hunters, the unfortunate opossum has but little chance of safety. For as soon as the creature is "treed," the quick, sharp bark of the dog conveys to its master the welcome tidings, and he immediately runs towards the point from whence proceeds the well-known voice of his dog.

Having reached the position of the enemy, he ascends the tree in chase of the opossum, which begins to climb towards the highest branches, followed by its pursuing foe. At last it gains the very extremity of some branch, and holds on with tail and claws, while the man endeavors to dislodge it by shaking violently the bough to which it clings. For a time it retains its hold, but is soon wearied by the constant exertion, and falls heavily to the ground, where it is seized and despatched by the expectant dogs.

The negroes are especially fond of this sport, and look eagerly forward to the close of the day when they have been promised a "possum-hunt," as a reward for good conduct. Not only do they very thoroughly enjoy the moonlight sport, with its exciting concomitants, but promise themselves a further gratification, after their return home, in eating the opossums which have fallen victims to their skill. The flesh of the opossum is white when cooked, and is considered to be remarkably good, especially when the animal is killed in autumn, for at that time of the year it is extremely fat.

Although, from the great accession of fat in the autumn months, it might be thought a hibernating animal, it is found

roaming the woods in search of food even in the coldest night of winter. Still, the large amount of fat with which the body is loaded is calculated to give the animal greater powers of resisting hunger and the severity of the weather than would otherwise have been the case, and enables it to thrive upon the comparatively small amount of food which it can obtain during the season of intense cold.

It is not a gregarious animal, and even the members of the same family spread themselves widely apart when they are in the open air.

The opossum, although so cunning in many respects, is singularly simple in others. There is hardly any animal which is so easily captured, for it will walk into the rudest of traps, and permit itself to be ensnared by a device at which a rat would look with contempt. Strange mixture of craft and dullness; and yet one which is commonly found in all creatures, whether men or animals, that only possess cunning and no observance at all. For there are none so prone to entangle themselves in difficulties as the over-artful. They must needs travel through crooked by-ways, instead of following the open road, and so blunder themselves stupidly and sinuously into needless peril, from which their craftiness sometimes extricates them, it is true, but not without much anxiety and apprehension.

When captured it is easily tamed, and falls into the habit of domestication with great ease. It is, however, not very agreeable as a domestic companion, as it is gifted with a powerful and very unpleasant odor, which emanates from its person with great force, whenever the animal is irritated or excited.

The nest of the opossum is always made in some protected situation, such as the hollow of a fallen or standing tree, or under the shelter of some old projecting roots. In forming an appropriate receptacle for her young, the opossum is assisted by her fore-feet, which are well adapted for digging. The nest itself is composed of long moss and various dried leaves. Sometimes the creature has been known to usurp the domicile of some other animal, not without suspicion of having previously devoured the rightful owner. On one occasion a hunter sent a rifle-ball through

a squirrel's nest, which was placed at some forty feet from the ground, and was surprised to see an opossum fall dead on the ground. This creature has also been known to possess itself of the warm nest of the Florida rat.

When the young of the opossum are born, they are transferred by the mother to her cradle-pouch, where they remain for some weeks. From repeated experiments that have been made on this animal, it is found that the transfer is made on the fifteenth day after the young have been called into existence, and that at that period they only weigh four grains, their total length being under an inch, the tail included. Their number is from thirteen to fifteen. After they are placed in the pouch their growth is wonderfully rapid, for in seven days they have gained so much substance as to weigh thirty grains; and even at this early period of their existence their tails exhibit the prehensile capacity, and are often found coiled round each other's bodies. In four weeks the little opossums have gained sufficient strength to put their heads out of the pouch, and at the end of the fifth week they are able to leave it entirely for a short time.

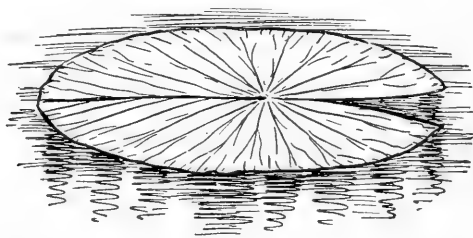
Very great trouble was required in order to ascertain these particulars, as it was found that the opossum was in the habit of hiding herself in her den until she had placed her young in the pouch, so that it was needful to search the cavity for these concealed females, and to watch their proceedings by night and day, without intermission.

There are one or two circumstances in connection with this subject that are well worthy of attention.

The young opossums are not, as has been often asserted, mere helpless lumps of animated substances, without sense or power of determinate action, but are wonderfully active in proportion to their minute size and their undeveloped state. If placed upon a table, they can crawl about its surface, and are sufficiently hardy to retain life for several hours after their removal from the warm cradle in which their tender bodies were shielded from harm, and the maternal fount which poured a constant stream of nourishment into their tiny systems.

Another singular circumstance is, that when they are

first placed in the pouch, they are blind and deaf, the eyes and ears being closed, and not opened until many days have elapsed. With partial blindness at the time of birth we are all familiar in the persons of kittens, puppies, and other little animals, but that the tender young of the Opossum should be deaf as well as blind, is truly singular. It appears that in the case of the kitten or puppy, the presence of light and the action of the atmosphere are needed in order to withdraw the obstacles that obstruct the sense of vision. In the young opossum, however, it seems that the action of the atmosphere is needed in order to render the ears sensitive to the sounds that are transmitted through its mediumship, but that in most cases the little creature requires the absence of light until the time comes for it to open its eyes as well as its ears.



Animal Reason.

Who after this is there who'll say
That animals' sense aren't as good as theirs,
For by example clear and plain,
Each does what is right again and again,
They've senses to think, reflect and plan,
Things that credit's given only to man.
They scheme and reason, have likes and fears,
That comes of experience of many years,
Who says 'tis instinct blind — alone —
Has not the reasoning sense they own.

THE MUSKRAT

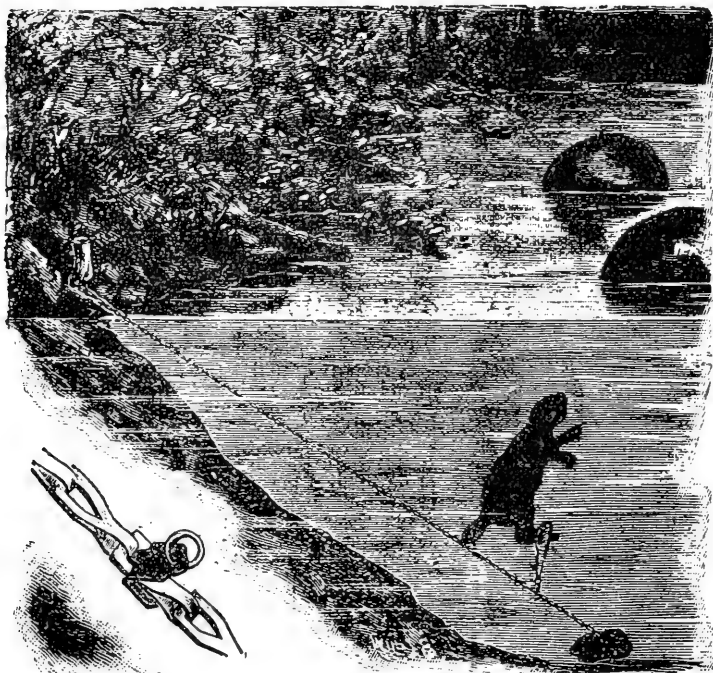
Found only in North America. Its head, neck and legs are short, and its thighs hid in its body. Its length is fifteen inches, its tail ten; its color reddish-brown above and ashy gray beneath. The fur is short and downy, and was formerly much used as a substitute for beaver; it is still in demand, and the animal is everywhere more or less an



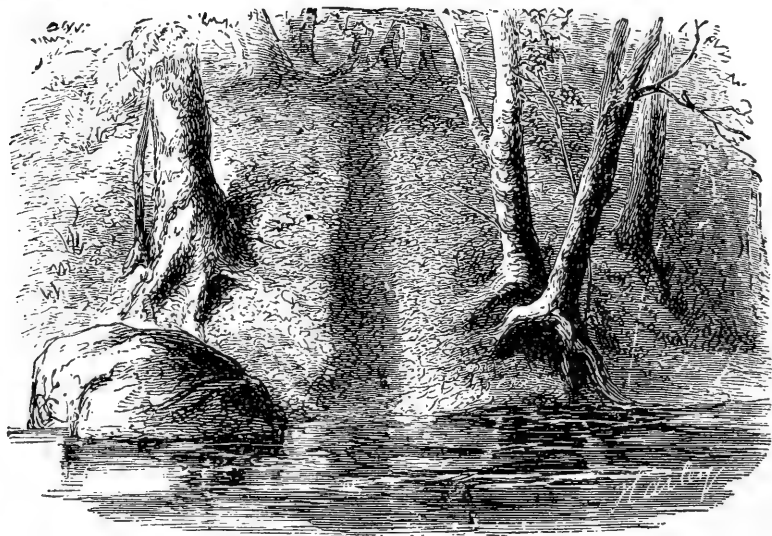
The Muskrat.

object of pursuit. It is endowed with a strong musky smell, but not very offensive; the flesh is tolerable food. It lives along the banks of ponds and rivers, somewhat in the manner of the beaver, building its winter-houses of mud in a conical form; with an entrance under water and a dry chamber above. It is a good swimmer though its feet are not webbed. In summer it digs burrows along the banks of lakes and streams, forming branched canals many yards in extent, and making a nest at the extremity, where the young are produced—three litters in a season, and three to five at a time. It may be observed that their modes of building, burrowing and living vary considerably in different localities—a fact no doubt owing to the varying necessities of their situation. Their food consists of grasses, roots of various kinds, tender shoots of the bulrush, and reed-mace, acorns, spice-wood, and sometimes, when dwelling near human cultivation, turnips, parsnips and carrots; they also occasionally eat mussels. In winter, when hard pressed,

Secrets of Trapping==Art of Etc.



Sliding Ring and Chain used to drown trapped Water Animals.
Traps for Water and Land Animals



"The Otter Slide" (at the foot trap is set)

they sometimes devour each other; when one is wounded the rest set to and eat him.

This is doubtless a dark streak in their character: for the rest, they are mostly a gentle folk, pursuing their avocations by night in a manner so quiet that they seldom intrude on the notice of mankind. They are of a sportive humor, and in the mild season, when the lakes and ponds are open, they may be seen—especially if moonlight favors the observation—disporting on the surface of the waters, swimming, diving and circling, with all the frolicsome humor of children. While some thus give themselves up to merriment, others are occupied in the graver but not less agreeable task of finding their food along the banks. It is said that one of them, at such a time, seated on a bank, looks exceedingly like a ball of earth. It is noticed, too, that in diving they make a smart stroke of the tail in the water, which seems to be an imitation of one of the tricks of the beaver. They do little damage to man, except in a few cases, when they dig up the borders of streams and ditches, yet on account of their fur they are objects of ceaseless persecution. A multitude of devices are brought into requisition for their capture; they are sometimes caught in traps and sometimes shot with guns; they are dug out and seized by dogs; the Indians spear them in their beds. They are found throughout the Atlantic States in more or less abundance, and are distributed northward through the British territories to the latitude 69° north. In the far Northwestern regions large numbers are taken by the Indians, who make the hunting of them a part of the business of their lives.

HOW TO HUNT AND CATCH THE MUSKRAT

The musquash, or muskrat, as it is often called, is another peculiar American animal, which is so well known as scarcely to require description. It is also very widely distributed over the United States, frequenting alike land bordering upon salt and fresh water, choosing swamps with dry

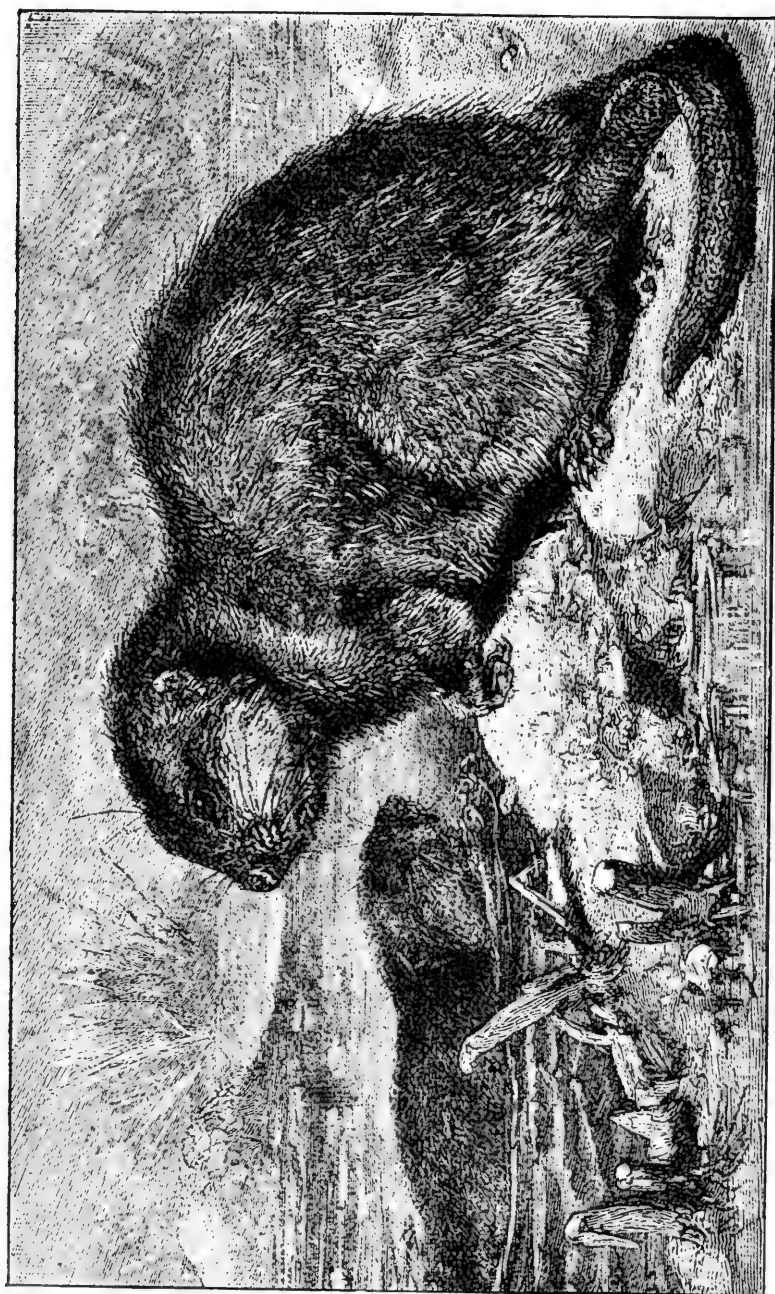
sandy banks, or earth embankments, in which it burrows. It is ten or twelve inches long, with a thick-set, arching body; head short, but rat-like; and the gnawing or front teeth very large, long and powerful. The hind feet are very long, and a short web is found only between the longest toes; yet the animals are rapid and strong swimmers. The tail of the musquash is compressed vertically, that is, it is flat, the edges being above and below. The beaver, which the muskrat greatly resembles in its habits, and which is naturally close akin to it, has a broad, horizontally flat tail. Like the beaver, the musquash builds his dam-like house in the swamps, ponds and marshes, setting the house upon the end of a log, or something that will swim, in the event of a flood, otherwise they would be drowned out; and where they are frozen down in time of low water, when the flood comes they have to abandon the house and go to their holes in the banks, or they drown in their houses, being shut in by ice. The materials used in building are roots and grass, and mud, carried together by mouthfuls and completely packed; pond lily tops, where they grow, form a large part of the house. They have a nice little chamber above the water, where they sleep, with an aperture through which they can dive into the water at any alarm from without; the house on the outside has the appearance of a heap of half-rotten manure, with some sticks in it. These houses they commence to build about the first of October, or when frosty nights begin to prevail, and they abandon them when warm weather comes again. This house-building is a mutual thing; if there were ten houses in a pond, and you should destroy nine of them, they would all go the tenth, and there, by carefully managing, you might catch the whole. They eat the roots of aquatic plants, calamus, pond lilies, etc., and are very fond of fresh water shell fish, especially the clam. So far as their food goes, they do the farmer little damage. The name muskrat is obviously derived from the strong odor of musk. "Musquash" is said to be the Indian name, and is preferable. I shall now try to tell you how to successfully hunt and trap him. As soon as the ice goes off in

the spring, you should commence, as his fur is then at its best.

The muskrat drops his dung on old logs or sticks resting on the bank, with one end in the water. When you find his "sign" on a log, chop a notch in it and set your trap about an inch under water, putting the chain-ring over a tally stick or over a stake driven into the log, in such a position that the muskrat may get into water deep enough to drown him. So go along near the marsh in your canoe, hunting out these resorts of the muskrat, and set your traps as directed. On a moonlight night at this season of the year, you may go with your boat or canoe into some sly place, and then set up a squeaking noise as much like a rat as you can. If any are within hearing they will soon make their appearance, and you may take aim at the head and shoot. This is a good way to hunt them along the edge of drowned land, and in ponds and lakes. Another good plan is to set your trap in two or three inches of water, at the places where they crawl ashore to dig for roots, and if you place a bit of parsnip, sweet apple, or carrot, on the end of a stick just over the trap, you will be quite sure of a catch.

Do not commence hunting too early in the fall; they do not bring forth their kittens until midsummer, and about the first of September they are but little things with very black pelts, and hardly worth the catching. But as soon as frosty nights come, and they begin to build their houses, you may go to work setting your traps two or three inches under water, at the place where they haul up their building material. At this season they feed chiefly on aquatic plants, and form large beds of loose stuff at their feeding places, and you may set your trap in these beds.

In winter, when the ice has made a bridge over all, go to one of their houses, and on the south side make an opening through the side directly into their chamber, and set your trap at the entrance of the dive-hole. Close up the opening that you have made, and you will soon catch the rat. If there are other houses, destroy all but this one, to which the whole colony will come, and you may catch them all; or you may have a one-tined spear made of



Muskral at Home

round three-eighths rod, about eighteen inches long, with a strong beard near the point. Have this fixed to a handle, say four feet long. Go very softly up to the south side of the house, and drive in your spear in a slanting direction, a few inches above the ice. You will often transfix two at a time. Or you may demolish the house and watch the dive-hole, spearing the animal when you see his nose come up.

You may use a scent to call the muskrat in the beginning of the year. There are various things that will do it. Perhaps the strongest is found in the female rat, in a small bag which holds from thirty to forty drops, and lies near the vagina. Carrying this scent in a vial, go to a log which lies with one end in the water, set your trap and fasten it as above directed, and put a drop or two of oil on the log just above the water. The first rat that comes along will be yours. The oils of rhodium and amber can be used in the same manner to advantage.

TO CATCH MUSKRATS WITHOUT TRAPS.

It is a mystery to many how muskrats, beavers, and other animals are able to stay so long under water, apparently without breathing, especially in winter. The way they manage is, they take a good breath at starting; and then remain under water as long as possible. Then they rise up to the ice and breathe out the air in their lungs, which remains in a bubble against the lower part of the ice. The water near the ice is highly charged with oxygen, which it readily imparts to the air breathed out. After a time this air is taken back in the lungs, and the animal goes again under water, repeating this process from time to time. In this way they can travel almost any distance, and live almost any length of time under the ice. The hunter takes advantage of this

habit of the muskrat in the following manner: When the marshes and ponds where the muskrat abounds are first frozen over, and the ice is thin and clear, on striking into their houses with his hatchet, for the purpose of setting his trap, he frequently sees a whole family plunge into the water and swim away under the ice. Following one for some distance, he sees him come up to recover his breath, in the manner above described. After the animal has breathed against the ice, and before he has time to take his bubble in again, the hunter strikes with his hatchet directly over him, and drives him away from his breath. In this case he drowns in swimming a few rods, and the hunter, cutting a hole in the ice, takes him out.



A Secluded Nook

THE BEAVER

This animal is furnished with two incisors and eight molars in each jaw, twenty in all; and is particularly distinguished from all the rest of the rodentia by a broad horizontally-flattened tail, which is nearly oval and covered with scales. There are five toes on each of the feet, but those of the hinder ones—somewhat resembling those of a goose—only are webbed, the webs extending beyond the roots of the nails. The second toe of these last is fur-



The Beaver at Work

nished with a double nail, or rather two, one like those of the other toes, and another beneath it, situated obliquely, with a sharp edge directed downward. There is also a less perfect double nail on the inner toe of the hind-feet.

The incisor teeth of the beaver are broad, flattened, and, as in most of the order, protected anteriorly by a coat of

very hard orange-colored enamel, the rest of the tooth being of a comparatively soft substance, whereby a cutting, chisel-like edge is obtained; and, indeed, no edge-tool, with all its combinations of hard and soft metal, could answer the purpose better. In fact, the beaver's incisor tooth is fashioned much upon the same principle as that followed by the tool-maker, who forms a cutting instrument by a skillful adaptation of hard and soft materials till he produces a good edge. But the natural instrument has one great advantage over the artificial tool; for the former is so organized that as fast as it is worn away by use, a reproduction and protrusion from the base takes place, and thus the two pairs of chisel-teeth working opposite to each other are always kept in good repair, with their edges at the proper cutting angle. When injury or disease destroys one of these incisors, its opposite, meeting with no check to resist the protrusion from behind, is pushed forward into a monstrous elongation. So hard is the enamel, and so good a cutting instrument is the incisor tooth of the beaver, that, when fixed in a wooden handle, it was used by the northern Indians to cut bone, and fashion their horn-tipped spears, etc., till it was superseded by the introduction of iron, when the beaver tooth was supplanted by the English file.

The power of these natural tools is such that a beaver will bite off a sapling of the size of a walking-stick at a single effort of its teeth.

When the beaver cuts down a tree it gnaws it all round, cutting it, however, somewhat higher on the one side than the other, by which the direction of its fall is determined. The stump is conical, and of such a height as a beaver sitting on his hind-quarters could make. The largest tree I observed cut down by them was about the thickness of a man's thigh—that is, six or seven inches in diameter. Beavers have no canine teeth.

The length of the head and body of a beaver is thirty-six to forty inches; the tail is about eleven inches. In the pairing season it utters a kind of cry resembling a faint groan. Owing to the shortness and inequality of its limbs, the gait is waddling and ungraceful; this effect is increased by the clumsiness of its figure, and the difficulty it seems

to have in dragging after it its cumbrous tail. The latter, however, becomes useful in the water, where the animal spends the greater part of its time, sometimes being employed as a paddle, and sometimes as a rudder. The color is a reddish-brown; there are varieties, however, some of which are flaxen-colored, and some black. There are albinos which are white.

The young of the beaver, five to seven at a birth, are produced in April or May, the eyes being open; in a month, they follow their mother into the water, but remain with her a year, sometimes two years, being kept in a place of safety. Sometimes a dozen beavers dwell together. They are caught at all seasons, being fat in autumn, but falling off in winter. They have been found weighing from thirty to sixty pounds. Their common food is the bark of trees—birch, willow and cotton-wood—and the roots of aquatic plants, especially the pond-lily; in summer they wander some distance from the water, and feed on berries, leaves and various kinds of herbage. They are said occasionally to devour fish, but this is not probable. Their fur consists of two sorts, one composed of long, stiff and elastic hair; the other, of a fine, soft, compact down, which gives extraordinary value to the skin.

It appears that among the beavers there are some lazy ones which do not, or will not, assist in the general labors of the association. These, as might be expected, are all males, and are beaten off by the community, and often are injured by having their tails cut off, and by other wounds. It has been suggested that they are disappointed lovers, and strange as it may appear, there seems some reason for this idea. They are called old bachelors. They do not build dams, but dig holes from the water, running obliquely toward the surface of the ground. From these they emerge, when necessity requires, to obtain food. They do not seem to set much value on life, and are easily caught by the hunters and trappers.

The drug called castoreum, and which is an unctuous substance, of a strong, musky odor, is obtained from two glandular sacks, situated near the anus. In dissecting a beaver, both males and females are furnished with one pair

of little bags containing castoreum, and also with a second pair of smaller ones betwixt the former and the anus, which are filled with a white fatty matter, of the consistence of butter, and exhaling a strong odor. This latter substance is an article of trade; the Indians occasionally eat it, and also mingle a little with their tobacco when they smoke. From the circumstance of small ponds, when inhabited by beavers, being tainted with its peculiar odor, it seems probable that it affords a dressing to the fur of these aquatic animals. The castoreum in its recent state is of an orange-color, which deepens as it dries into bright reddish-brown. During the drying, which is allowed to go on in the shade, a gummy matter exudes through the sack, which the Indians delight in eating. The male and female castoreum is of the same value, ten pairs of bags of either kind being once reckoned to an Indian as equal to one beaver skin. The castoreum is never adulterated in the fur countries.

The castoreum, which is called bark-stone by the traders, is used by the hunters in baiting their traps, because the beavers are exceedingly fond of the odor. The end of a small stick, chewed or crushed, is dipped in the castoreum, which is kept in a horn; it is then set in the water, with the anointed end above the surface, and the trap beneath. The beavers scent the castoreum for a hundred yards or more, and so much are they delighted, that they draw in a long breath, and utter a cry of joy as they imbibe the delicious fragrance. On approaching the delusive bait they are caught in the trap.

The flesh of the beaver is much prized by the Indians and Canadian voyagers, especially when it is roasted in the skin, after the hair has been singed off. In some districts it requires all the influence of the fur-trader to restrain the hunters from sacrificing a considerable quantity of beaver fur every year to secure the enjoyment of this luxury; and Indians of note have generally one or two feasts in the season, wherein a roasted beaver is the prime dish. It resembles pork in its flavor, but the lean is dark-colored, the fat oily, and it requires a strong stomach to sustain a full meal of it. The tail, which is considered a great luxury,

consists of a gristly kind of fat, as rich, but not so nauseating, as the fat of the body.

Where the beavers are numerous they are found to inhabit lakes, ponds and rivers, as well as those narrow creeks which connect the numerous lakes with which this country abounds; but the two latter are generally chosen by them when the depth of water, and other circumstances, are suitable, as they have then the advantage of a current to convey wood and other necessities to their habitations, and because, in general, they are more difficult to be taken than those that are built in standing water. They always choose those parts that have such a depth of water as will resist the frost in winter, and prevent it from freezing to the bottom. The beavers that build their houses in small rivers or creeks, in which water is liable to be drained off when the back supplies are dried up by the frost, are wonderfully taught by instinct to provide against that evil by making a dam quite across the river, at a convenient distance from their houses.

The beaver-dams differ in shape according to the nature of the place in which they are built. If the water in the river or creek have but little motion, the dam is almost straight; but when the current is more rapid, it is always made with a considerable curve, convex toward the stream. The materials made use of are drift-wood, green willows, birch and poplars, if they can be got; also, mud and stones, intermixed in such a manner as must evidently contribute to the strength of the dam; but there is no other order or method observed in the dams, except that of the work being carried on with a regular sweep, and all the parts being made of equal strength. In places which have been long frequented by beavers undisturbed, their dams, by frequent repairing, become a solid bank, capable of resisting a great force, both of water and ice; and as the willow, poplar and birch generally take root and shoot up, they by degrees form a kind of regular planted hedge, which I have seen in some places so tall that birds built their nests among the branches.

The beaver houses are built of the same materials as the dams, and are always proportioned in size to the number

of inhabitants, which seldom exceeds four old and six or eight young ones; though by chance I have seen above double the number. Instead of order or regulation being observed in rearing their houses, they are of a much ruder structure than their dams; for, notwithstanding the sagacity of these animals, it has never been observed that they aim at any other convenience in their houses than to have a dry place to lie on, and there they usually eat their victuals, which they occasionally take out of the water. It frequently happens that some of the large houses are found to have one or more partitions, if they deserve that appellation, but it is no more than a part of the main building, left by the sagacity of the beaver to support the roof. On such occasions, it is common for those different apartments to have no communication with each other but by water; so that, in fact, they may be called double or treble houses, rather than different apartments of the same house. I have seen a large beaver house built in a small island that had near a dozen apartments under one roof; and, two or three of these excepted, none of them had any communication with each other but by water. As there were beavers enough to inhabit each apartment, it is more than probable that each family knew their own, and always entered at their own doors, without any further connection with their neighbors than a friendly intercourse, and to join their united labors in erecting their separate habitations, and building their dams where required.

They lay most of the wood crosswise, and nearly horizontal, and without any other order than that of leaving a hollow or cavity in the middle. When any unnecessary branches project inward, they cut them off with their teeth and throw them in among the rest, to prevent the mud from falling through the roof. It is a mistaken notion that the wood-work is first completed and then plastered; for the whole of their houses, as well as their dams, are, from the foundation, one mass of mud and wood, mixed with stones, if they can be procured. The mud is always taken from the edge of the bank, or the bottom of the creek or pond near the door of the house; and though their forepaws are so small, yet it is held close up between them

under their throat; thus they carry both mud and stones, while they always drag the wood with their teeth. All their work is executed in the night, and they are so expeditious that in the course of one night I have known them to have collected as much as amounted to some thousands of their little handfuls. It is a great piece of policy in these animals to cover the outside of their houses every fall with fresh mud, and as late as possible in the autumn, even when the frost becomes pretty severe, as by this means it soon freezes as hard as a stone, and prevents their common enemy, the wolverine, from disturbing them during the winter; and as they are frequently seen to walk over their work, and sometimes to give a flap with their tail, particularly when plunging into the water, this has, without doubt, given rise to the vulgar opinion that they use their tails as a trowel with which they plaster their houses; whereas, that flapping of the tail is no more than a custom which they always preserve, even when they become tame and domestic, and more particularly so when they are startled.

Their food consists largely of the root of the common yellow water-lily. They also eat the bark of trees, particularly those of the poplar, birch and willow; but the ice preventing them from getting to the land in the winter, they have not any bark to feed on in that season, except that of such sticks as they cut down in summer, and throw into the water opposite the doors of their houses, and as they generally eat a great deal, the roots above mentioned constitute a principal part of their food during the winter. In summer they vary their diet by eating various kinds of herbage, and such berries as grow near their haunts during that season. When the ice breaks up in the spring, the beavers always leave their houses, and rove about until a little before the fall of the leaf, when they return again to their old habitations, and lay in their winter stock of wood. They seldom begin to repair their houses till the frost commences, and never finish the outer coat till the cold is pretty severe, as has been already mentioned. When they erect a new habitation, they begin felling the wood early in the summer, but seldom begin to build until the middle or

latter end of August, and never complete it till the cold weather sets in.

Persons who attempt to take beaver in winter should be thoroughly acquainted with their manner of life, otherwise they will have endless trouble to effect their purpose, because they have always a number of holes in the banks which serve them as places of retreat when any injury is offered to their houses, and in general it is in those holes that they are taken. When the beavers which are situated in a small river or creek are to be taken, the Indians sometimes find it necessary to stake the river across, to prevent them from passing; after which, they endeavor to find out all their holes or places of retreat in the banks. This requires much practice and experience to accomplish, and is performed in the following manner: every man being furnished with an ice-chisel, lashes it to the end of a small staff about four or five feet long; he then walks along the edge of the banks, and keeps knocking his chisel against the ice. Those who are acquainted with that kind of work well know by the sound of the ice when they are opposite to any of the beavers' holes or vaults. As soon as they suspect any, they cut a hole through the ice big enough to admit an old beaver, and in this manner proceed till they have found out all their places of retreat, or at least as many of them as possible. While the principal men are thus employed, some of the understrappers and the women are busy in breaking open the house, which at times is no easy task, for I have frequently known these houses to be five or six feet thick, and one in particular was more than eight feet thick in the crown. When the beavers find that their habitations are invaded, they fly to their holes in the banks for shelter; and on being perceived by the Indians, which is easily done by attending to the motion of the water, they block up the entrance with stakes of wood, and then haul the beaver out of its hole, either by hand, if they can reach it, or with a large hook made for that purpose, which is fastened to the end of a long stick.

In this kind of hunting every man has the sole right to all the beavers caught by him in the holes or vaults; and as this is a constant rule, each person takes care to

mark such as he discovers by sticking up a branch of a tree, by which he may know them. All that are caught in the house are the property of the person who finds it. The beaver is an animal which cannot keep under water long at a time, so that, when their houses are broken open, and all their places of retreat discovered, they have but one choice left, as it may be called, either to be taken in their house or their vaults; in general, they prefer the latter, for where there is one beaver caught in the house, many thousand are taken in the vaults in the banks. Sometimes they are caught in nets, and in summer very frequently in traps.

In respect to the beavers dunging in their houses, as some persons assert, it is quite wrong, as they always plunge into the water to do it. I am the better enabled to make this assertion from having kept several of them till they became so domesticated as to answer to their name, and follow those to whom they were accustomed in the same manner as a dog would do, and they were as much pleased at being fondled as any animal I ever saw.

The beaver is instinctively led to build his house near the banks of lakes and rivers. He saws with his teeth birch trees, with which the building is constructed; with his teeth he drags the wood along to the place destined for building his habitation; in this manner one piece of timber is carried after another where they choose. At the lake or river, where their house is to be built, they lay birch-stocks or trunks, covered with their bark, in the bottom itself, and forming a foundation, they complete the rest of the building with so much art and ingenuity as to excite the admiration of the beholders. The home itself is of a round and arched figure, equaling in its circumference the ordinary hut of a Laplander. In this house the floor is for a bed, covered with branches of trees, not in the very bottom, but a little above, near the edge of a river or lake, so that, between the foundation and flooring, on which the dwelling is supported, there is formed, as it were, a cell, filled with water, in which the stalks of the birch tree are put up; on the bark of this the beaver family who inhabit this mansion feed. If there are more families under

one roof, besides the laid flooring, another, resembling the former, is built a little above, which you may not improperly name a second story in the building. The roof of the dwelling consists of branches very closely compacted, and projects out far over the water. You have now, reader, a house consisting and laid out in a cellar, a flooring, a hypocaust, a ceiling and a roof, raised by a brute animal.

While the beaver has thus been exterminated in Europe, except that a few linger along the borders of the rivers in the more thinly settled portions, and somewhat greater numbers exist in the forests of the north, in North America a similar process has been going on. Where, half a century ago, a hunter or trapper could kill four hundred in a year, they are already scarce, and are only to be found in sufficient numbers to make the pursuit a profession in the distant solitudes of the extreme northwest.

TRAPPING THE BEAVER

The beaver has been practically exterminated in all the Atlantic and in the Western States, as far as the middle and upper waters of the Missouri; while in the Hudson Bay possessions they are becoming annually more scarce, and the race will eventually be extinguished throughout the whole continent. A few individuals may, for a time, elude the immediate violence of persecution, and like the degraded descendants of the aborigines of our soil be occasionally exhibited as melancholy mementos of the tribes long previously whelmed in the fathomless gulf of avarice. The business of trapping requires great experience and caution, as the senses of the beaver are very keen, and enable him to detect the recent presence of the hunter by the slightest traces. It is necessary that the hands should be washed clean before the trap is handled and baited, and every precaution should be employed to elude the vigilance of the animal.

The bait which is used to entice the beavers is prepared

from the substance called castor, obtained from the glandulous pouches of the male animal, which contains some times from two to three ounces. This substance is called by the hunters barkstone, and is squeezed gently into an open-mouthed phial. The contents of five or six of these castor bags are mixed with a nutmeg, twelve or fifteen cloves, and thirty grains of cinnamon, in fine powder, and then the whole is stirred up with as much whiskey as will give it the consistency of mustard prepared for the table. This mixture must be kept closely corked up, and in four or five days the odor will become more powerful; with care it may be preserved for months without injury. Various other strong aromatics are sometimes used to increase the pungency of the odor. Some of this preparation, smeared upon the bits of wood with which the traps are baited, will entice the beaver from a great distance.

The castor, whose odor is similar to tanners' ooze, gets the name of barkstone from its resemblance to finely powdered bark; the sacks that contain it are about two inches in length. Behind these, and between the skin and root of the tail, are found two other oval cists, lying together, which contain a pure, strong oil of a rancid smell.

During the winter season the beaver becomes very fat, and its flesh is esteemed by the hunters as excellent food, but those occasionally caught in the summer are very thin and unfit for the table. They lead so wandering a life at this season, and are so much exhausted by the collection of materials for building, or the winter stock of provisions, as well as by suckling their young, as to be generally, at that time, in a very poor condition. Their fur, during the summer, is of little value, and it is only in winter that it is to be obtained in that state which renders it so desirable to the fur traders.

Beaver hunting is a laborious occupation. With your beaver traps on your back you start into the wild woods and go to some small branches or creeks that empty into lakes or large streams. Follow these up until you discover small trees, cut down by the beaver. It is not exactly like chopping done with an axe, but it is fairly chopped after all—cut smoothly from above and below, lengthwise with the grain. If the cut seems fresh and new, the beavers

are close by. Don't make much noise, nor leave much sign behind you, if you intend to catch them in a trap.

We will suppose this is late in the fall, just before the winter sets in, and that you suddenly come upon a dam as you travel up the little stream, and it proves to be an old dam of long standing with a large pond of water above it. You may naturally conclude that there is a large family of beavers, say eight or ten in number. Of course you want to catch them all in your trap, so hunt carefully around the pond and you will find their feeding place, where they have eaten the bark off from their feed wood. Here set your trap in four inches of water, with a twelve-pound stone fastened to the end of the chain. Fasten to it also a piece of bark twelve or fourteen feet long, the other end being fastened to the shore. When the beaver is caught he will make for deep water, and the stone will sink him and drown him. The bark will let him go far enough, and will enable you to trace the trap and pull him out. The bark should be fastened to a stake under water, and the slack should be coiled up and put under the stone. The whole apparatus, except the trap, should be nicely covered with mud. If you find the place where they haul in their timber, set a trap there in the same way. Also just at the mouths of their holes, under water. Always have the trap sufficiently weighted, or the beaver will come ashore and amputate his leg. When you set the trap at the feeding place, smear the wood around it with the castor scent before described.

Don't imagine any old scent will do for beaver, or, for that matter, any animal. Scent to be right must be for that particular kind, else it makes them suspicious, and when you use bait or feed scent **don't use too much of it**. Many trappers use so much that they make the place fairly stink, and it's like posting **a sign**, keep off; in fact, a dead give-away and makes them alarmed and suspicious. **A few drops** suffices if it is good and strong or made right.

When you cut a beaver dam, don't make a hole more than six inches deep. Wade in the water while you are doing it; don't step on the land, and don't spit on it; neither handle it with dirty hands. Set the trap as before directed

in about four inches of water, where they would naturally swim up to the gap in the dam, and you will be sure to catch them.

Another mode is to take a poplar or alder stick or pole, and stick it in the water in a slanting direction near the feeding place. Set the trap near the bottom of the stick, and as they work down in gnawing off the bark for food, they will get into the trap. This plan works well after the water is frozen over. In fact, one wants to study out conditions and make their sets according to things as they find them. There is no cut and dried system in any kind of trapping. Hardly any two animals are caught under exactly the same conditions (except in the same set). Personally I have always found that I had to use different methods. In every part of the world I have hunted and trapped in, whether in the Arctics, Antarcotics, Alaska, Norway, Greenland, Hudson Bay or Spitzbergen, and nearly every state in the Union, one must judge largely by conditions, season, weather, foods, habits and peculiarities of the animals, and if they have been hunted or trapped much one will have to be mighty careful, as the old ones are very shy and suspicious of everything strange.

The No. 3 Newhouse trap is the best size for the beaver. Some trappers use the No. 4, but we have found the No. 3 to work most effectually, it being more easily handled than a larger trap. There is no regular rule for setting traps for beaver, as they must be arranged in accordance with the nature of the trapping ground. It is not best to put traps in beaver holes, as they become wary and suspicious; but to drown the beaver should always be made a point, else an amputated foot is all that the trapper will get for his trouble.

When searching for "sign," find a slide if possible, and set the trap at the foot of it, about four inches under water; bury the trap lightly in the mud, except the pan, which should be free, and lightly covered with dirt or leaves; leave as little trace as possible, and fasten in the middle a stick about three feet long to the ring in the end of the chain; then tie a rope or light chain to the ring long enough to let the beaver reach deep water when caught. If the bank

is steep and water deep, drive a long pole in the bottom, and stake the large end down under water near the trap. Adjust the chain about the pole so that it will slide easily, fasten the end of the rope or long chain to a stake under water where it can be easily reached; cover all traces of the fastenings as nearly as possible with mud or dead leaves, and throw water where you have been standing, or upon any object handled. If stones are about, it is well to weight a trap, though it is but seldom a beaver makes his way to the surface of the water when once reaching the bottom of the pole; here he is sure to go when trapped, in attempting to reach deep water. When a trapped beaver is able to reach his hole, or get loose from the pole, he will enter a burrow the length of the short chain only, and the cross-pole will stop him in season to be easily drawn from the hole.

In small dams, rig the trap with cross-pole and buoy only, having the trap lightly weighted; a beaver will be drowned in the entrance of a hole, or in deep water, when the buoy will indicate the position of the trap. In thick willows, where one has no canoe to find suitable places for setting traps, it is best to place them at crossings, or where the beavers are at work. Should a dam be completed (which is usual before cold weather), make a ditch where the water will run over, and set a trap the same as at the foot of a slide. It is seldom that beavers are taken on successive nights in one dam, as the first capture generally alarms the rest. The castoreum, or beaver medicine, can be made after the first pelt has been stretched. The proper way to prepare it is to take the contents of the four glands and mix with enough alcohol to preserve it. Most trappers use whiskey to preserve the beaver medicine; we have questioned many, and they all give the same receipt; we have heard of some more fastidious than practical, who, with the pen, mix all kinds of strong scents with the castoreum, but it over-powers the odor that should be preserved—the natural scent of the beaver. The medicine must be used above the traps as much as possible. For instance, if a trap was set under a log in the water, the lower surface of the log should be rubbed with the castoreum.

A good trapper never skins a beaver near a dam, as

everything left behind suggests an enemy in the camp to the rest of the sagacious beavers.

Although the haunts and habits of the beaver are all the necessary details to be given in trapping, the anatomy of the skull is so peculiar that it cannot fail to be of interest to the reader.

The skull of the average beaver is 5 inches long, 3.50 inches wide, with a circumference over the eyes of 11 inches. The heavy structure indicates great strength, and the under jaw is remarkably thick and strong. The brain is medium in size. The upper portion of the skull is broad and flat, with a slight rise from nose to occiput, broken only by a slight depression between the eyes. The ears in life are attached to bone tubes, which project 0.25 of an inch from the skull and run to the drums; these are large, rather near together, and rest just forward of the occipital bone. There are two incisors on each jaw, the superior ones curving inward, and the lower ones slightly outward; the latter are the longest, measuring 1.25 inch. The front surface of the incisors are covered with plates of thick enamel, which form the cutting edges. It is very hard, and the outer surface is of an orange color. The teeth are shaped precisely like a carver's gouge, being slightly convex on the face, sharpened by a concave slant from a point scarcely half the length of the teeth to the edges.

The grinders are eight on a side (four upper, four under), and are regularly grooved like the ruminant's. The fore part of the upper jaw is so narrow that the width of the roof of the mouth is but 0.25 of an inch between the first two teeth; all of the upper grinders slant backward, while those of the lower jaw incline forward, and both meet with evenness and precision.



The Beaver.

THE PORCUPINE

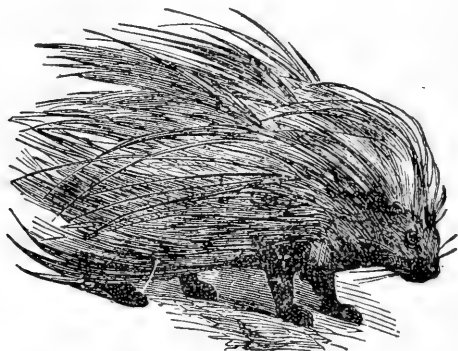
This includes certain rodents whose covering consists for the most part of a kind of offensive and defensive armor, in the shape of spines or quills, instead of hairs, somewhat after the manner of the hedge-hogs. Their molars are four in number, with a flattened crown, variously modified by layers of enamel, which leave deep intervals; their tongue is rough, with spiny scales; the tail is short, and the feet plantigrade. Many of the species live in burrows, and have much the habits of rabbits. Their grunting voice, joined to their large and truncated muzzle, has caused them to be compared to the hog, whence their French name, *Porc-Epic*, meaning Spiny-pig.

When full grown it is about one foot in length, the longest spines exceeding a foot. The general color is grizzled dusky-black, resulting from an intermixture of various shades of white, brown and black; upper part of the head and neck furnished with a crest of long lighter-colored hairs, capable of being raised or depressed at pleasure; hair on the muzzle and limbs very short, almost black on the limbs; that of the neck and under parts brownish, and of considerable length; on the fore-part and sides of the neck a whitish band; all the remaining parts of the back and sides, including the rump and upper parts of the hinder-legs, armed with spines, which are longest on the center of the back. The spines, almost of the thickness of a goose-quill in the middle, are supported at the base by a slender pedicle, and terminating in very sharp points, striated longitudinally, and ringed alternately with black and white; the rings an inch or more broad. Their usual position is lying nearly flat upon the body, with the points directed backward; when the animal is excited, they are raised by means of the subcutaneous muscles almost at right angles with the body, and then present a very formidable appearance. They are not capable of being detached by the animal. The tail-quills are, as it were, cut off in the middle, and are consequently open at the end, and produce a loud rustling noise when the animal agitates its tail.

The porcupine is a nocturnal animal, sleeping in the burrow which it digs, and to which there are several openings, during the day, and coming forth at nightfall to seek its food, consisting principally of roots, fruits and tender leaves. Its usual food near the Cape, where it is called Yzer-Varken, is the root of that beautiful plant, the *Calla Æthiopica*, which grows even in the ditches about the gardens; but it will frequently deign to put up with cabbages and other vegetables, and sometimes commits great depredations in the gardens themselves. It undergoes a partial hibernation, but its sleep is not of long duration, for it ventures abroad again at the very commencement of spring. The young are produced in August, and have very small spines.

The use of the quills is simply that of a defensive armor, but as this seems a cumbrous device for such a purpose, we are led to insist on finding other advantages to be derived from them. Hence, Thunberg tells us that he was informed that the Ceylonese porcupine had "a very curious method of fetching water for its young, namely, the quills in the tail are said to be hollow, and to have a hole at the extremity, and that the animal can bend them in such a manner as that they can be filled with water, which afterward is discharged in the nest among the young." Such inventions, to help nature out, so as to satisfy a narrow conception of her works, are doubtless the source of many of the common-place errors in respect to animals of peculiar organization; but the truth certainly is, that the porcupine finds his quill armor an exceedingly convenient, useful and effective defense, and he would be as imperfect without it as a wasp without its sting, or a cock without his spurs. The porcupine is an exceedingly stupid creature, and hence, no doubt, nature supplied him with his formidable covering as a compensation for his lack of brains; as an indispensable provision in order to put him on a level with other brutes of his order. The mode by which nature equalizes her favors are infinitely diversified: some animals she endows with instincts, some with gifts analogous to reason, some with strength, some with dexterity, some with defensive or offensive weapons. The hare has speed, the squirrel activity,

the marmot caution, the beaver ingenuity, the rat most or all of these qualities; the porcupine, destitute of all, has his quiver of arrows, which he shakes in the face of his



The Porcupine

foe, to frighten him if he is a coward, and to pierce him if he has the courage to make an attack. In case of need, he will run backward at his enemy, and thus strike his sharp-pointed arrows into him. Without his quills, the porcupine would seem to be a singularly unmeaning, uncouth and helpless sot; with them, he has a position in history, and figures in literature as the emblem of human fretfulness and conceit.

THE MARTEN

The marten includes several remarkable species, all of which climb with facility, and having long, lithe bodies, with short legs, are able to enter holes and wind through passages from which even the smallest cats are excluded. They are all endowed with voracious appetites, and devour

great numbers of eggs, birds and small quadrupeds. Some of them introduce themselves into the poultry-yards, and make immense havoc among the feathered inhabitants. Most of them are noted for their valuable peltry, and some pro-



The Marten.

duce the finest and most luxurious furs that are known. Though nearly allied to the weasels and polecats, which are distinguished for their offensive odor, the martens only diffuse a musky and not disagreeable scent.

Its head is somewhat triangular, the muzzle pointed, the eyes prominent and lively; the body much elongated and very flexible; the tail long, thick and bushy; the toes naked, but at times, probably in the winter, covered beneath with thin soft hair. The fur is of two sorts—the inner extremely soft, short, copious and of a light yellowish-gray color; the outer very long, shining, ash-colored at the roots, brown at the extremity, but of different degrees of intensity at different parts of the body; the middle of the back, the tail, the outer parts of the legs and the feet, being darker than the other parts; the belly lighter and more gray; the throat white. Length of head and body one foot six inches; of the tail, nine inches six lines.

This marten is found more remote from woods, though it is often met with in them, and more frequently in mountainous and stony places, and nearer the habitations of man than the pine marten. It prefers the vicinity of farm-yards and homesteads, and is a ruinous visitor to them and the game-preserve. It is an expert climber, and is lively, active and graceful in its movements. The nest of the female is constructed of herbage, straw or grass, sometimes in the

hollow of a tree, sometimes in the crevices of rocks, not unfrequently in a ruin, and occasionally in granaries or barns. The fur is considered very far superior to that of the pine marten, and is known in the trade as the skin of the Stone Marten. Many are imported from the north of Europe, and dyed to represent sable. The comparatively poor quality of the fur, however, is immediately perceptible to the experienced eye, although, as is the case with most of the animals which are used for their fur, the northern skins are fuller, richer in color and more lustrous than those from more temperate climates.

The Pine Marten

Of this species the general color is brown, though as in the case of the preceding, subject to variation in the depth of the tint; throat yellow; toes naked beneath; legs longer and head smaller than in the beech marten. This is the *Marte* of the French; *Marta*, *Martura*, *Martora* and *Martorello* of the Italians; *Marta* of the Spanish; *Feld-Marder* and *Wild-Marder* of the Germans; *Marter* of the Dutch; *Wawpeestan* of the Cree Indians; *Wawbeechins* of the Algonquins; *Sable* of the American fur dealers, though Dr. DeKay thinks the American sable a distinct species, and *Marten* of the Hudson's Bay Company's Lists. It is found in Europe and North America. In its habits it resembles the beech marten in many respects, but it shuns the neighborhood of man—living in Europe in deep forests, and preying on birds and the smaller animals. The female deposits six to eight young ones, in a nest of moss and leaves, formed in some hollow tree, when she does not take possession of that of the squirrel or the woodpecker.

In America it inhabits the woody districts in the northern parts, from the Atlantic to the Pacific, in great numbers, and has been observed to be particularly abundant where the trees have been killed by fire, but are still standing. It lives in the trees, is nocturnal in its habits and destroys great numbers of the smaller squirrels. The limit of its northern range in America is like that of the woods, about

the sixty-eighth degree of latitude, and it is said to be found as far south as New England. Particular races of martens, distinguished by the fineness and dark colors of their fur, appear to inhabit certain rocky districts. The rocky and mountainous but woody district of the Nipigon, on the north side of Lake Superior, has long been known for its black and valuable marten skins.

Length of the head and body from eighteen to twenty inches. The fur loses all its luster, and consequently much of its value, upon the falling of the first shower of rain for the season. This animal preys on mice, hares and partridges, and in summer on small birds' eggs, etc. A bird's head, with the feathers, is the best bait for the long-traps in which it is taken. It does not reject carrion, and often destroys the hoards of meat and fish laid up by the natives, when they have accidentally left a crevice by which it can enter. When its retreat is cut off, it shows its teeth, sets up its hair, arches its back, and hisses like a cat. It will seize a dog by the nose and bite so hard that, unless the latter is well used to the combat, it escapes. Easily tamed, it soon becomes attached to its master, but is not docile. The flesh is occasionally eaten, but not prized, by the Indians. The females are smaller than the males, go with young about six weeks, and produce from four to seven at a time, about the end of April.

The fur of this animal is much esteemed, and the exportation of skins from the territories of the Hudson's Bay Company and Canada is very great.

The Pekan, Fisher or Pennant's Marten, called Black Fox and Black Cat in some parts of the United States, has a head somewhat resembling a cat, eyes small and oblique, body long, and formed for agility and strength; general color, grayish brown; length of the body, twenty-four inches. It runs with rapidity, and climbs trees with facility. When attacked by dogs it fights ferociously. Though nocturnal in its habits, it is frequently seen abroad in the day. It prefers low, swampy ground, and being partially web-footed, probably preys occasionally on fish; it generally feeds on mice, rabbits, grouse and the like. It is said to have received the name of Fisher from a taste for fish used to bait

traps. It has a fondness for the Canada porcupine, which it kills by turning it over and biting it on the belly.

The Sable, or Zibeline Marten, *M. zibellina*; the Sobol of the Poles and Russians.—This is by far the most highly esteemed of all the martens; it ranks higher in respect to its fur than even the ermine. In form and size it does not differ greatly from the other martens, and there is also a slight resemblance in the character of the fur, though that of the martens is very inferior in all those qualities which are valued in furs. Though the fact is sometimes stated otherwise, the teeth of the sable are of exactly the same character as those of the martens, which indicates the same kind of living, and the capacity of partially subsisting upon vegetable matter when animal food is not to be had. But there is one character of the sable which points it out as belonging to a different locality, and that is, the feet being completely covered with fur down to the claws. Thus the sable is a more northerly animal than any of the martens, and much more a creature of the wilds. Accordingly, it is never met with in warm places, but only in the extremest wilds of Siberia and the vicinity, beyond the positive forests, and on the margins of the polar ice.

The skin of the sable is exceedingly valuable; and though a very small one, a single skin fetches a large price. The animal is accordingly sought after with the greatest assiduity, and it may be said, that the desire of procuring sable skins has conduced more than anything else to the discovery of the extreme north and northeast of Asia. It is during the winter that this hunting is carried on, and it is described as being more severe than the hunting of the fur animals in America, because of the vast accumulations of broken ice, covered with snow, which skirt the shores of the sea, and contain between them the most dangerous pitfalls, concealed by snow. In America, the margin of the Polar Sea is no doubt as wild in itself as it is in Asia; but the American hunting-ground does not come up into so high latitudes as the sable ground in Siberia; and thus, though the American hunter has long roads and severe cold, he is not beset by so many dangers. We need hardly mention that the fur of the sable, in its perfection, is a rich brown, marked with some

white spots on the chin and sides of the head. The part where these spots are is not as much valued as the rest, and the furriers work it up separately, and give it the name of "sable gill."

Like the ermine, the sable is subject to an annual change of color. In summer it is black, and the change to brown that it undergoes in winter naturally follows the general law of being more perfect in proportion as the cold is more severe. The cold of the sable's country, however, is sufficient every winter for accomplishing any thing that cold can accomplish, whether it reside in the places which we have mentioned close by the Polar Sea, or on the cold heights of the mountains further south; and, therefore, the sable skins obtained during the winter are more uniform in color than those of animals which inhabit less rigorous localities.

In many places in Siberia, the hunting of the sable is a duty imposed by the Russian government upon the exiles of that country; and to them, when they first enter upon it, it is the most dreadful to which human beings can be subjected. They are unacquainted with the country, and instead of knowing where to discover and how to procure the animals, of which they are compelled to find a specified number, they can hardly make their own way across the rocks and chasms, fallen trees, and countless other irregularities, all hidden under the snow; and thus many of them perish in that dreadful wilderness.

The sable, as we might expect, partakes of the characters of a tree animal and a ground animal jointly. It can climb, and it is understood to climb for those wild berries which remain upon the branches in winter, as well as for birds and their eggs and young during the summer. It also hunts prey upon the ground, and though it is, of course, not capable of running down a hare in fair chase, it is very capable of dispatching one if it come upon it by surprise. It is also sure to follow the more powerful predatory animals, the polar bear, the wolf, and the glutton, in order to obtain a share of their prey. In its disposition it is not a ferocious animal, but can be tamed, and will show some affection in a domestic state. In this condition it subsists

indiscriminately upon animal and vegetable matter, and is said not to be so prone to make its escape to the wilds as the other martens.

HOW TO CATCH THE MARTEN^a

The pine marten, a native of the north, and an inhabitant of the pine forests, whence it derives its name, is abundant in the northern portions of British America, and is not uncommon among the wooded ravines of the northern United States. It builds its habitation chiefly on the tops of the fir, or seizes on the already formed nest of the squirrel, or some bird, whence it drives the owner, and enlarges for its own convenience. It is of rather less size than the common marten, but its fur is finer and darker, and the throat and breast yellow, instead of white. In summer it assumes a lighter tinge, and its hair becomes shorter; in winter its toes are well protected by long wool, which drops off as the weather gets warm. Its habits are similar to the common marten, but it is more fierce; it never meets the wild-cat without a deadly encounter and is sometimes victorious even over the eagle, when that bird pounces on its prey, seizing the aggressor by the throat, and bringing it lifeless to the ground. Formerly, the fur of this species formed a lucrative article of export from the United States. At present immense quantities are brought from Siberia, and in one year the Hudson Bay Company alone sold fifteen thousand skins.

The sable inhabits the same countries in the north, and has sometimes been confounded with the former, which it strongly resembles in structure and habits. It is somewhat larger in size than the pine marten; its head is rather more slightly depressed, and its muzzle more elongated, the soles of the feet more villous, and finally, the fur on its body is more beautiful, soft, long, black and shining, and the hair turns with ease either way. The skin is consequently more valuable, and one of them not exceeding four inches broad has sometimes been valued as

high as seventy-five dollars. The tails are sold by the hundred at from twenty to forty dollars. The exiles in Siberia are required to furnish a certain number of skins annually, from which the Russian government is said to derive a considerable revenue. The smell of the marten tribe is rather agreeable. They are taken in traps, and also hunted with the musket.

The marten is easily caught. The common way is to set dead-falls a quarter of a mile apart on the banks of streams, or through brook and wilderness, hauling a trail of liver, or the body of roasted crow from one to the other. The dead-fall is so well known that it is not necessary to describe it.

In using the steel trap, bait with the bodies of crows, chickens, partridges, fresh fish, liver or entrails. Stake the bait in the hollow roots of trees, under logs, or under the edges of rocks; then set your trap in such a manner that they will have to go over it to get the bait; fasten it with chain and stake, and cover it up with moss or leaves. Or set your trap in some convenient place, where you can suspend the bait eighteen inches above it in such a manner that they cannot possibly climb up to it, for they will certainly do this when they can.

The marten may be caught in a wooden trap in the following manner. In the side of a tree, with its bottom about eighteen inches from the ground, cut a square hole six inches wide, eight inches high, and five or six inches deep. Cut a pole about twelve feet long, and square off one end so that it will play up and down easily in the hole, and so that when it is raised against the top there will be five inches space below it; that is, have the squared end only three inches thick, and a little narrower than the width of the hole. Let the other end rest on a forked stick, so as to hold it in a horizontal position. Raise the squared end against the top of the hole and set it with a standard and spindle near the back of the hole. Bait the spindle with any of the meats named above. The marten, in trying to get the bait, pulls out the standard, and lets down the pole, which catches him by the head.

The marten may be followed by his tracks, which are about the size of a small cat's. He always travels on a jump, making only the mark of two feet close together, the pairs being about two feet and a half apart. When closely pursued he takes to a tree, and is a splendid climber. You will find his tracks in my chapter on tracks and trailing.

THE FERRET

The ferret is of a light yellowish color, different parts being more or less white, for the long fur is partly white, and the short almost entirely yellow; the eyes are pink, length of head and body fourteen inches; of the tail six inches. It is supposed to be a native of Africa, but is not found there in a wild state; it is domesticated in Europe, and, by some, is regarded as a variety of the polecat, produced partly through albinism. This, no doubt, is an error. Its habits are similar to those of the European weasels, but more blood-thirsty.

This species, whose whiteness and red eyes may, perhaps, be the result of a long period of domestication, cannot bear cold, and should be kept warm to insure its healthy condition. It is said to breed twice a year in a state of domestication, unless it devours its offspring, which it sometimes does, and then it has three litters. The gestation of the female continues six weeks, and she then produces generally six or seven young—sometimes even nine. These are blind for a month, and at the end of two more are considered fit for service.

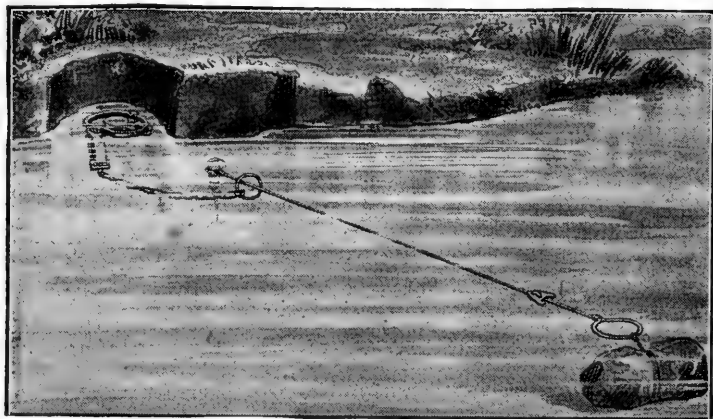
It is very bold, however, and its disposition to kill rabbits is most inveterate. It is chiefly used for rabbit-hunting, not for killing them; for if it were allowed to do that, it would soon dispatch a whole warren, and leave the owner to dig out the dead bodies at his leisure. It is used to "unearth" them, or drive them out of their holes, and it is carefully muzzled to prevent it from biting. The rabbits are not, of course, aware of the perfect harmlessness of the muzzled ferret, and so they scamper out, and are

caught, generally by watch at the mouths of the holes, and at another time in a net, if the object is to keep the rabbits alive. It is also the very prince of rat-catchers; and, as it is not muzzled for this sort of occupation, it slaughters away in a dashing style, and might be very useful in places infested with rats, were it not for the attention and trouble which it requires. In corn-stores and mills it might be advantageously kept; and if a snug berth could always be provided for it, it would be very valuable at sea. The ferret, as is the case with most animals when transported to a climate colder than their natural one, spends a great deal of its time in sleep; but the moment that it awakens, it is in a state for action; and slender as it seems, it is capable of undergoing a great deal of fatigue.

It is distinguished by the long, flexible, worm-like form, the nimble gliding movements, the sanguinary tastes and destructive habits of the genus; and, indeed, possesses all their qualities in the highest perfection. It is ten or eleven inches long, the body reddish brown above, and white beneath; extremity of the tail black. The most remarkable fact in its history is, that the dark part of its fur turns white in winter, in northern climates, but generally remains the same in southern latitudes, as in Virginia, for instance. Even in the state of New York, shades of brown frequently remain blended with the white. The change from brown to white takes place in October and November; the change from white to brown in March. These alterations are not effected by shedding the coat, but by changes in the color of the hair itself. The young are four to seven in number, and are produced in April.

"It appears that in England, generally," says Mr. Macgillivray, "the ermine is less common than the weasel; but in Scotland, even to the south of the Frith of Forth, it is certainly of more frequent occurrence than that species; and for one weasel I have seen at least five or six ermines. It frequents stony places and thickets, among which it finds a secure retreat, as its agility enables it to outstrip even a dog in a short race, and the slimness of its body allows it to enter a very small aperture. Patches of furze, in particu-

lar, afford it perfect security, and it sometimes takes possession of a rabbit's burrow. It preys on game and other birds, from the grouse and ptarmigan downward, sometimes attacks poultry or sucks their eggs, and is a determined enemy to rats and moles. Young rabbits and hares frequently become victims to its rapacity, and even full-grown individuals are sometimes destroyed by it. Although in general it does not appear to hunt by scent, yet it has been seen to trace its prey like a dog, following its track with certainty. Its motions are elegant, and its appearance extremely animated. It moves by leaping or bounding, and is capable of running with great speed, although it



"Shaw's Drowner" Ready for Use.

seldom trusts itself beyond the immediate vicinity of cover. Under the excitement of pursuit, however, its courage is surprising, for it will attack, seize by the throat, and cling to a grouse, hare, or other animal strong enough to carry it off, and it does not hesitate, on occasion, to betake itself to the water. Sometimes, when met with in a thicket or stony place, it will stand and gaze upon the intruder, as if conscious of security; and, although its boldness has been exaggerated in the popular stories which have made their way into books of natural history, it cannot be denied that,

in proportion to its size, it is at least as courageous as the tiger or the lion."

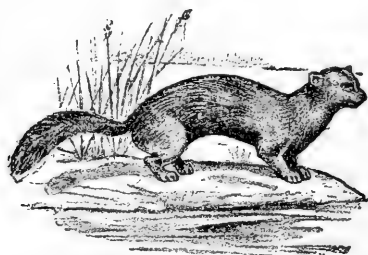
In Siberia, ermines are taken in traps baited with flesh; and in Norway they are either shot with blunt arrows, or taken in traps made of two flat stones, one being propped up with a stick, to which is fastened a baited string. This the animal nibbles, when the stone falls and crushes it. Two logs of wood are used for the same purpose, and in the same manner, in Lapland.

Not that a weasel will do one-third the mischief that a stoat will, nor upon animals of such large growth, but it will do enough. It is a most active and persevering hunter; few trees will stop it when in search of bird's nests, which it robs not only by sucking the eggs, but by carrying off the young. It will hunt the mole, the field-mouse and other small quadrupeds in their usual haunts, not only by the eye, but by scent, like a stoat, and most amusing it is to see one of these flexible, agile little creatures tracing up the scent when it is at fault. They will quarter the ground like a dog till they hit it off, and to lose no help from the eye, will occasionally sit up, raising themselves on their hind-quarters to gain a more extended view around them. Their perseverance will tire down animals larger and stronger than themselves, nor will water stop them when their prey takes to it for safety. In they plunge, and seldom quit their object till the fatal bite is inflicted. The brain is generally first eaten, and the body of the victim kept as a supply near the haunt of the little hunter; but it seems very questionable whether they are addicted to the blood-sucking propensities which the vulgar attribute to them.

With similar courage the weasel will attack dogs, and even men, when its nest is invaded. This is formed of dry leaves and herbage, and is generally lodged in some snug locality, such as a crevice in a bank, the hollow of a tree, or a dry ditch, which keeps it warm and comfortable. Here four or five young are brought up from each birth, the number of these litters being two, and even three, in the year.

THE MINK

The mink has the long, slender body of the genus; the color, varying in different species, is generally dark brown, with a light spot under the throat. When seen in the woods or fields the animal appears black, and hence "black as mink" is a proverbial expression among us. There is considerable difference in the size; thirteen inches is, however, the average length of the body and head. The mink has



The Mink.

not only the form of the weasels, but much of their activity and voracity. They frequently take up their abode near the poultry-yard, where they make great havoc. They frequent the streams, where they swim well, and prove themselves to be expert fishermen. They not only eat fish, but frogs and crawfish, besides mice and rats, the latter furnishing a good part of their living. They have a good nose, and follow their prey by scent with the certainty of a hound. They are fond of water, preferring small streams; they delight in rapids and waterfalls, and often make their residence at their feet. Many of them frequent the marshes of the Southern States, where they feed on small shell-fish and aquatic insects, with such shore birds as they can seize. The marsh-hen frequently becomes their prey. They sometimes ascend trees, but not often; they are neither suspicious nor cunning, and are easily caught in traps. The young are produced in April, and from four to six at a time. The fur was once much esteemed, but it is now of little

value; some specimens, however, of peculiar fineness, and of a beautiful silver-gray, still bring large prices. This animal is peculiar to North America, and is distributed throughout nearly its whole extent, being rare, however, in the more settled parts.

The Mountain Brook Mink, *P. nigrescens*, is somewhat smaller than the preceding, the body being about eleven inches long. In color and habits it resembles the vison. It is found in the mountainous regions from Canada to Pennsylvania.

The mink unquestionably belongs to the weasel family, from which it is distinguished only by a few slight structural modifications and some aquatic habits. There is not much difference between them and the so-called polecats, stoats or weasels, the facial expression and skull being a trifle narrower, somewhat like the marten. Its toes, too, are partly webbed. It resembles much the marsh otter of eastern Europe, Finland, Siberia and Russia.

In size it much resembles the English polecat—the length of the head and body being usually from 15 to 18 inches, that of the tail to the end of the hair about 9 inches. The female is considerably smaller than the male. The tail is bushy, but tapering at the end. The ears are small, low, rounded, and scarcely project beyond the adjacent fur. The pelage consists of a dense, soft, matted under fur, mixed with long, stiff, lustrous hairs on all parts of the body and tail. The gloss is greatest on the upper parts; on the tail the bristly hairs predominate. Northern specimens have the finest and most glistening pelage; in those from southern regions there is less difference between the under and over fur, and the whole pelage is coarser and harsher. In color, different specimens present a considerable range of variation, but the animal is ordinarily of a rich dark brown, scarcely or not paler below than on the general upper parts; but the back is usually the darkest, and the tail is nearly black. The under jaw, from the chin about as far back as the angle of the mouth, is generally white. In the European mink the upper lip is also white, but, as this occasionally occurs in American specimens, it fails as an absolutely distinguishing character. Besides the white on the chin, there

Read Habits and Peculiarities of Wild Animals.



The Mink at Home in Winter.

are often other irregular white patches on the under parts of the body. In very rare instances the tail is tipped with white. The fur, like that of most of the animals of the group to which it belongs, is an important article of commerce.

The principal characteristic of the mink in comparison with its congeners is its amphibious mode of life. It is to the water what the other weasels are to the land, or martens to the trees, being as essentially aquatic in its habits as the otter, beaver or musk-rat, and spending perhaps more of its time in the water than it does on land. It swims with most of the body submerged, and dives with perfect ease, remaining long without coming to the surface to breathe. It makes its nest in burrows in the banks of streams, breeding once a year about the month of April, and producing five or six young at a birth. Its food consists of frogs, fish, freshwater molluscs and crustaceans, as well as mice, rats, muskrats, rabbits and small birds. In common with the other animals of the genus it has a very peculiar and disagreeable effluvium, which, according to Coues, is more powerful, penetrating and lasting than that of any animal of the country except the skunk. It also possesses the courage, ferocity and tenacity of life of its allies. When taken young, however, it can be readily tamed, and lately minks have been extensively bred in captivity in America both for the sake of their fur and for the purpose of using them in like manner as ferrets in England, to clear buildings of rats.

The result of my observation during twenty-five years spent in the woods and fields in a good game country, is that the weasel is the most destructive enemy the small game has to contend against. Dogs that are allowed to run at large, cats, hawks and foxes all kill game; but there is a chance to escape from all these by hiding in holes in the ground or in hollow trees; but a weasel will follow a track like a bloodhound, and can enter anywhere. It is no uncommon thing to see a rabbit running through the woods, squealing with terror, a weasel in close pursuit; and well may the rabbit squeal, for his chances of escape are not one in a hundred. If anyone doubts this, let him find the track of a weasel on a fresh fall of snow. The track, I may remark,

resembles that of a fox—though, of course, smaller—and it will be seen that the prints are made by two feet striking side by side like this:

: : : : : : :

instead of a single footprint, as in the fox track. If the track is followed a few hours in a country where there are plenty of rabbits, it is not unusual to find that from ten to twenty rabbits have been killed by a single weasel in a night, while a fox will rarely kill more than two or three. A fox will eat the carcass of animals, scraps from camp, or offal where big game has been butchered; a gray fox will not decline apples, nuts and berries. There are many nights, during heavy snows or storms, when the rabbits do not venture from their holes and the foxes have no chance to catch them. I have often seen where a fox had lain in wait at a rabbit burrow as a cat watches for a mouse, but in the end was compelled to go away without his game.

A weasel, on the contrary, can follow a rabbit wherever he may choose to go. The fine sport that fox hunting affords, together with the commercial value of their skins, will prevent foxes from increasing in numbers very rapidly; but the pelt of the weasel is not worth taking, and the animal itself is seldom encountered by hunters. So it goes on destroying the game and has no enemies to hinder its natural increase. A small deadfall, baited with a rabbit-leg or a bird-head, will often secure the little pest, while it will not catch so large an animal as a dog or cat. Foxes and rabbits are often abundant in the same locality, but where you see weasel tracks the rabbits soon disappear.

They are prime from November to January. Foods used: Birds, mice, rabbits, squirrels, musk-rats, etc. Use water sets whenever possible on banks and sand bars, arranging bait sufficient distance away so as the animal will have to step on trap to reach it. Bait can be fastened securely on a pointed stick as if floating, and stick to trap. If they refuse bait try scent only. If stream is frozen set your trap at crossings or natural bridges, enclosures, gullies, etc., formed by dead limbs, brush, etc., where it will be protected from snow drifts, etc., and depend upon scent to lure them that way. Minks, as a rule, like to investigate and sneak

around every likely hole and corner, and can be easily led to the trap or snare by scent or blood trails.

HOW TO CATCH THE MINK

This little animal, which is much like the weasel, has, of late years, become so valuable that no pains is spared to obtain his hide. It is but a few years since that a mink skin would not bring above twenty cents. The mink is shaped much like the otter, and although he appears to be no more fitted for swimming than the weasel, yet the water is his home. He eats fishes and frogs, and craw-fish, and now and then gets into the farm and steals chickens, and goslings, and ducks, and whatever he can lay his jaws to. He is a pilfering little rascal, and yet so simple and foolish that he will run into a naked trap for the sake of something to eat; he runs up streams of water and crosses the land from one lake to another—a regular renegade. He burrows in steep banks, or under old roots, or in the rocks. The young are brought forth in May or June, in litters of five or six—black looking little things.

To catch this animal, you have only to be acquainted with its habits. He follows streams of water, hunting every nook and corner for something to eat. Place your trap near the edge of the water (so that it will be covered about an inch deep), directly in front of a steep bank or rock, or something on which you can hang your bait, about eighteen inches above the level of the trap, which must be so close to the shore that the mink cannot get to the bait without stepping on it. The bait should be fresh fish or frogs, or the head of some bird or fowl. He is very fond of brains.

Another plan is to set your trap on the land about two feet from the shore, covering it with a few leaves, moss, grass, or loose dirt, or anything that will not prevent the jaws from closing. Hang the bait about eighteen inches above it, and scent it with a mixture made of equal parts of honey, sweet oil and essence of peppermint. About six drops of this on the bait will cause them to come from a

long distance. Some use wooden traps, with which they are quite successful, if they round regularly.

The following is a good plan: Set your traps about two feet back from the water, and from forty to eighty rods apart, up or down the stream. Then walk over the line, drawing after you the carcass of a muskrat, or almost any fresh meat; and any mink that crosses this line or trail will follow it to the trap. It is also a good plan to set your trap where the mink must walk over it to get at the bait. He is a great fellow to catch muskrats, which he loves to eat, and you may bait the trap with muskrat and set it in a rat house, where you will often find handfuls of little fish that the mink has brought there. In the winter time he travels along springy brooks, pulling out frogs, and here he may easily be caught. You may also catch them in winter at the sides of big springs, or along the springy sides of ponds and swamps, where they like to roam.



The Author's Pack Tent and Bedding, which can be carried in the pack.

THE WOLVERENE

The **glutton, gulo, carcajou, quickhatch wolf-bear** are some of the common names of this interesting creature whose form indicates strength without corresponding activity. Body is heavy, clumsy like; legs, thick, short and low; back, high arched, form drooping before and behind; tail and head carried low; general appearance like a bear cub; head broad



Wolverine

and rounded; short pointed muzzle; eyes wide apart, small but crafty; ears low, shaggy appearance; legs stout, feet large; track like a small bear, but not quite so flat; palms and soles furry, but pads naked; color, blackish to deep, dusky or yellowish brown fading to gray; legs and feet dark; claws curved, strong and whitish; old ones show more markings than the young and include white stripings on back, rump and throat. Color varies according to habitat and age. **Animal or scent glands about the size of a walnut;** fluid yellowish brown, **strong to a high degree;** discharge by glands without the verge of the anus. Massive skull, hyena-like; jaws strong and powerful.

Probably no animal has a greater reputation, superstitious reverence and traditional history, which pictures it as a ravenous monster, a terror or bloodthirsty brute or glutton, than the wolverene, which is said to resemble a very large, clumsy marten or weasel, of great strength, but not corresponding activity, displaying great intelligence, perseverance, sagacity;

it lives in dens or burrows, holes up periodically, but does not hibernate; it feeds on carcasses of any animal which it can find dead, or which it kills. It ordinarily feeds on small animals. It is an extraordinary thief or **robber**, and this fact has led to exaggerations of its abilities. It does not climb trees, but will steal and rob stores or **caches** of meat, fish and provisions laid up; steals the bait from traps or anything it can carry away and avoids the most experienced 'trappers' sets or snare with almost human intelligence. Hence, the very many stories as to its super-human feats of strength and craftiness.

Alluding to the wolverene's notorious habit of following marten roads, Mr. Graham remarks that the animal tears the captured martens to pieces or buries them at a distance in the snow. "Drifts of snow often conceal the repositories thus made of the martens from the hunter, in which case they furnish a regale to the hungry fox, whose sagacious nostril guides him unerringly to the spot. Two or three foxes are often seen following the wolverene for this purpose."

"The wolverene is a dangerous foe to many animals larger than itself, and by the professional hunter it is looked upon as an ugly and dangerous customer. There are several methods of trapping this horrid creature, and in many localities successful trapping of other animals will be impossible without first ridding the neighborhood of the wolverenes. Dead-falls of large size will be found to work successfully, baiting with the body of some small animal, such as a rat or squirrel. A piece of cat, beaver or muskrat flesh is also excellent, and by slightly scenting with castoreum success will be made sure. Several of these traps may be set at intervals, and a trail made by dragging a piece of smoked beaver meat between them. The gun-trap will also do good service in exterminating this useless and troublesome animal. Steel traps of size No. 3 or 4 are commonly used to good purpose. In all cases the trap should be covered with leaves, moss or the like, and the bait slightly scented with castoreum. Like all voracious animals, the perpetual greed of the wolverene completely over-balances

its caution, and thus renders its capture an easy task.”—

No trapper or hunter may safely leave an animal he has killed for one night, but never for a second time, without placing it in a strong cache of logs. The first night the wolverene is pretty sure to visit the place, but will touch nothing. The next night he is certain to return, and, if he can possibly get at the meat, he will gorge himself, and then make away with the rest, which he cunningly hides, piece by piece, under the snow, in different directions. At every cache he makes he voids his urine or drops his dirt, probably to prevent foxes, martens or other animals from smelling the hidden meat and digging it up. Caches must be made of green wood, and be exceedingly strong, or the animal will certainly break into them. He has been known to gnaw through a log nearly a foot in diameter, and also to dig a hole several feet deep in frozen ground, to gain access to the coveted supply. Should he succeed in gaining entrance for himself, and yet be unable to displace the logs sufficiently to permit of removal of the meat, the brute will make water and dirt all over it, rendering it wholly unfit to be used; even a dog will then scarcely touch it.

To the trapper, the wolverenes are equally annoying. When they have discovered a line of marten traps, they will never abandon the road, and must be killed before the trapping can be successfully carried on. Beginning at one end, they proceed from trap to trap along the whole line, pulling them successively to pieces, and taking out the baits from behind. When they can eat no more, they continue to steal the baits and cache them. If hungry, they may devour two or three of the martens they find captured, the remainder being carried off and hidden in the snow at a considerable distance. The work of demolition goes on as fast as the traps can be renewed.

The propensity to steal and hide things is one of the strongest traits of the wolverene. To such an extent is it developed that the animal will often secrete articles of no possible use to itself. Besides the wanton destruction of marten traps, it will carry off the sticks and hide them at a distance, apparently in sheer malice. The desire for accumulating property seems so deeply implanted in this

animal, that, like tame ravens, it does not appear to care much what it steals so that it can exercise its favorite propensity to commit mischief. "An instance occurred within my own knowledge in which a hunter and his family having left their lodge unguarded during their absence, on their return found it completely gutted—the walls were there but nothing else. Blankets, guns, kettles, axes, cans, knives and all the other paraphernalia of a trapper's tent had vanished, and the tracks left by the beast showed who had been the thief. The family set to work, and by carefully following up all his paths recovered, with some trifling exceptions, the whole of the lost property.

Though very clumsy animals, the wolverenes manage to capture, at times, such prey as hares or grouse, and they successfully attack disabled deer. We have already seen how they destroy foxes in their burrows; and they are usually found in excellent condition. They also feed on offal or carrion; in fact, anything that they can catch or steal. Their own flesh is only eatable in the extreme of starvation. They bring forth in burrows under ground, probably old bear washes, and have four or five young at a birth. It is very rarely that they are discovered at this period or whilst suckling their young. One reason, however, may be that they reproduce late in June and early in July, when the mosquitoes are so numerous that no one who can avoid it goes abroad in the woods. The rutting season is in the latter part of March. The female is ferocious in the defense of her young, and if disturbed at this time will not hesitate to attack a man. Indeed, Indians have been heard to aver that they would sooner encounter a she-bear with her cubs than a carcajou under the same circumstances. In October, when the rivers set fast, the wolverenes reappear in families, the young still following their dam, though now not much her inferior in size. They are full grown when about a year old. In early infancy, the cubs are said to be of a pale cream color.

The wolverene may be captured in wooden traps similar to those used for martens, but of course made on a much larger scale, as the animal's strength is enormous, even for its size. The traps are sometimes built with two doors. But so great is the cunning and sagacity of the beast that

the contrivance for its destruction must be very perfect. The traps are covered up with pine-brush, and made to resemble a cache as much as possible; the wolverene is then likely to break in and get caught. The bait, ordinarily the conspicuous feature of a trap, must in this instance be concealed, or the animal will either break in from behind, or, failing in this, will pass on his way. It is sometimes also taken in steel traps, or by means of a set gun; but both these methods are uncertain, great "medicine" being required to outwit the knowing and suspicious beast.

The eyesight of the wolverene is not very bright, but his sense of smell is extremely acute.

One winter passed at Fort Simpson I had a line of marten and fox traps, and lynx snares, extending as far as Lac de Brochet. Visiting them on one occasion I found a lynx alive in one of my snares, and being indisposed to carry it so far home, determined to kill and skin it before it should freeze. But how to cache the skin till my return? This was a serious question, for carcajou tracks were numerous. Placing the carcass as a decoy in a clump of willows at one side of the path, I went some distance on the opposite side, dug a hole with my snow-shoe about three feet deep in the snow, packed the skin in the smallest possible compass, and put it in the bottom of the hole, which I filled up again very carefully, packing the snow down hard, and then strewing loose snow over the surface till the spot looked as if it had never been disturbed. I also strewed blood and entrails in the path and around the willows. Returning next morning, I found that the carcass was gone, as I expected it would be, but that the place where the skin was cached was apparently undisturbed. "Ah, you rascal," said I, addressing aloud the absent carcajou, "I have outwitted you for once." I lighted my pipe, and proceeded leisurely to dig up the skin to place in my muskymoot. I went clear down to the ground, on this side and on that, but no lynx skin was there. The carcajou had been before me, and had carried it off along with the carcass; but he had taken the pains to fill up the hole again and make everything as smooth as before!

At Peel's River, on one occasion, a very old carcajou discovered my marten road, on which I had nearly a hundred

and fifty traps. I was in the habit of visiting the line about once a fortnight; but the beast fell into the way of coming oftener than I did, to my great annoyance and vexation. I determined to put a stop to this thieving and his life together, cost what it might. So I made six strong traps at as many different points, and also set three steel traps. For three weeks I tried my best to catch the beast without success; and my worst enemy would allow that I am no green hand in these matters. The animal carefully avoided the traps set for his own benefit, and seemed to be taking more delight than ever in demolishing my marten traps and eating the martens, scattering the poles in every direction, and caching what baits or martens he did not devour on the spot. As we had no poison in those days, I next set a gun on the bank of a little lake. The gun was concealed in some low bushes, but the bait was so placed that the carcajou must see it on his way up the bank. I blockaded my path to the gun with a small pine tree which completely hid it. On my first visit afterward I found that the beast had gone up to the bait and smelled it, but left it untouched. He had next pulled up the pine tree and blocked the path, and gone around the gun and cut the line which connected the bait with the trigger, just behind the muzzle. Then he had gone back and pulled the bait away, and carried it out on the lake, where he laid down and devoured it at his leisure. There I found my string. I could scarcely believe that all this had been done designedly, for it seemed that faculties fully on a par with human reason would be required for such an exploit, if done intentionally. I therefore rearranged things, tying the string where it had been bitten. But the result was exactly the same for three successive occasions, as I could plainly see by the footprints; and what is most singular of all, each time the brute was careful to cut the line a little back of where it had been tied before, as if actually reasoning with himself that even the knots might be some new device of mine, and therefore a source of hidden danger he would prudently avoid. I came to the conclusion that that carcajou ought to live, as he must be something at least human, if not worse. I gave it up, and abandoned the road for a period.

On another occasion a carcajou amused himself, much as

usual, by tracking my line from one end to the other and demolishing my traps, as fast as I could set them. I put a large steel trap in the middle of a path that branched off among some willows, spreading no bait, but risking the chance that the animal would "put his foot in it" on his way to break a trap at the end of the path. On my next visit I found that the trap was gone, but I noticed the blood and entrails of a hare that had evidently been caught in the trap and devoured by the carcajou on the spot. Examining his footprints I was satisfied that he had not been caught, and I took up his trail. Proceeding about a mile through the woods I came to a small lake, on the banks of which I recognized traces of the trap, which the beast had laid down in order to go a few steps to one side to make water on a stump. He had then returned and picked up the trap, which he had carried across the lake, with many a twist and turn on the hard crust of snow to mislead his expected pursuer, and then again entered the woods. I followed for about half a mile farther and then came to a large hole dug in the snow. This place, however, seemed not to have suited him, for there was nothing there. A few yards farther on, however, I found a neatly built mound of snow on which the animal had made water and left his dirt; this I know was his cache. Using one of my snowshoes for a spade I dug into the hillock and down to the ground, the snow being about four feet deep; and there I found my trap, with the toes of a rabbit still in the jaws. Could it have been the animal's instinctive impulse to hide prey that made him carry my trap so far merely for the morsel of meat still held in it? Or did his cunning nature prompt him to hide the trap for fear that on some future unlucky occasion he might put his own toes in it and share the rabbit's fate?

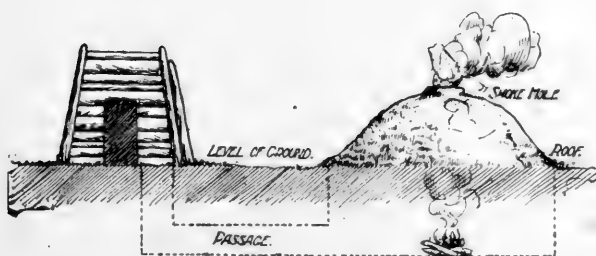
The ferocity of the wolverene, no less than its cunning, is illustrated in some of the endless occasions on which it matches its powers against those of its worst enemy. A man had set a gun for a carcajou which had been on his usual round of demolition of marten traps. The animal seized the bait unwarily, and set off the gun; but owing to careless or improper setting, the charge missed or only wounded it. The carcajou rushed upon the weapon, tore it from its

fastenings and chewed the stock to pieces. It is added to the account of this exploit that the beast finished by planting the barrel muzzle downward upright in the snow; but this may not be fully credited. The stories that pass current among trappers in the north would alone fill a volume, and they are quite a match for those that Olaus Magnus set down in his book centuries ago. How much wiser are we in our generation? Is there anything new under the sun? But we need not go beyond the strict fact to be impressed with the extraordinary wit of the beast, whom all concur in conceding to be "as cunning as the very devil."

With so much for the tricks and the manners of the beast behind our backs, roaming at will in his vast solitudes, what of his actions in the presence of man? It is said that if one only stands still, even in full view of an approaching carcajou, he will come within fifty or sixty yards, provided he be to windward, before he takes the alarm. Even then, if he be not warned by sense of smell, he seems in doubt, and will gaze earnestly several times before he finally concludes to take himself off. On these and similar occasions he has a singular habit—one not shared, so far as I am aware, by any other beast whatever. He sits on his haunches and shades his eyes with one of his fore paws, just as a human being would do in scrutinizing a dim or distant object. The carcajou then, in addition to his other and varied accomplishments, is a perfect skeptic—to use this word in its original signification. A skeptic, with the Greeks, was simply one who would shade his eyes to see more clearly. To this day, in sign language among some of the North American Indians, placing the hand to the forehead signifies "white man"—either in allusion to this habit, or to the shade given the eyes by the straight vizor of the military cap, which the Indians see oftener than they desire. Mr. Lockhart writes that he has twice been eye-witness of this curious habit of the wolverene. Once, as he was drifting down stream in a small canoe, he came within a short distance of one of the animals on the bank; it stopped on perceiving him, squatted on its haunches, and peered earnestly at the advancing boat, holding one fore paw over its eyes in the manner described. Not seeming to take alarm, it

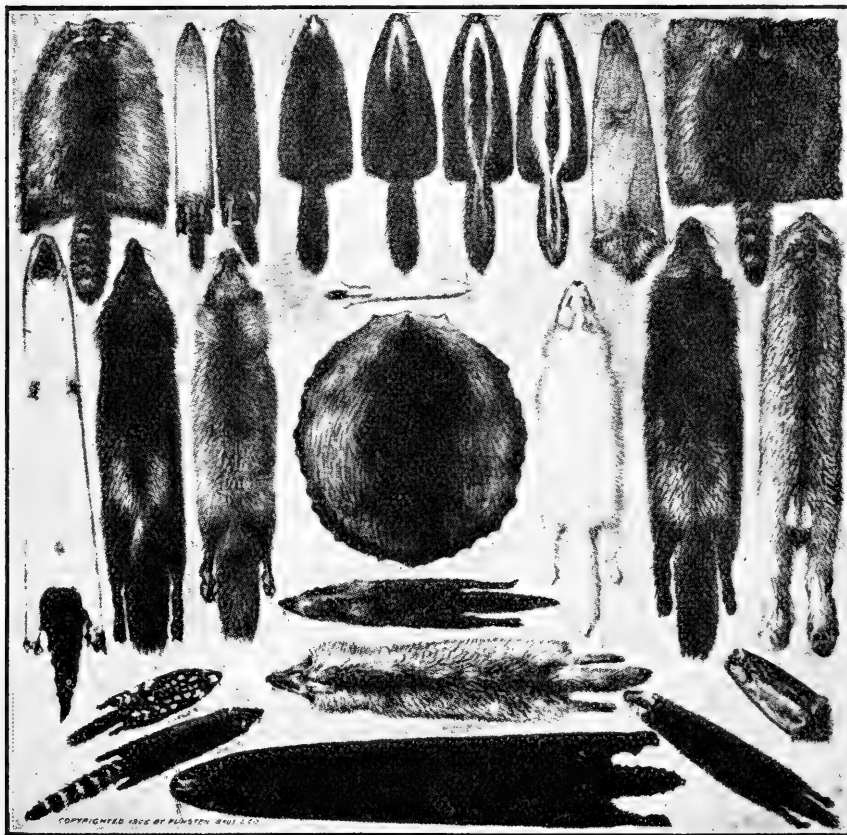
proceeded on a few paces, and then stopped to repeat the performance, when Mr. Lockhart, now sufficiently near, fired and killed the beast. On another occasion, when the same gentleman was crossing the Rocky Mountains, a wolverene, which had become alarmed and was making off, stopped frequently and put up his paw in the same manner, in order to see more clearly the nature of that which had disturbed him.

The Warmest Dugout Shanty or Shack that can be easily built.



The Trapper's Winter Ground Hut.

The Correct Way to Prepare Pelts or Skins.



**Trappers can Materially Increase Their Profits
by a Study of This Reproduction of
Prime Furs or Pelts.**

HOW TO HANDLE THE PELTS.

The following kinds of furs should be taken off cased, that is, NOT cut open down the belly: Mink, Marten, Skunk, Opossum, Land Otter, all kinds of Foxes, Ermine (or White Weasel), Lynx, Civet, Ring Tail Cat, Fisher, Sea Otter, Muskrat and House Cat.

Wolf may be either cased or open. The fine skins from mountain or northern sections sell better cased, while the Wolf and Coyote skins from western and southwestern prairie sections sell better open.

To remove skins that are taken off cased, a cut should be made crosswise just under the tail, and lengthwise down the back of the hind legs, so as to get the skins free from the legs; then peel the skin right off, pelt side out. See that the skin is free from fat or meat by scraping if necessary, but do not cut or damage the skin. Use fur stretchers if you have them; if not, cut a thin board to the natural shape of the skin, but a trifle larger, and put inside the skin so as to stretch it. See picture which suggests the popular shapes to stretch the various skins. Do not stretch skins too much with the hope of getting a large skin out of a small one; too much stretching spreads the fur over a larger surface and makes it appear thin and lacking in richness of color.

Note—Cut tails off of Opossum and Muskrat ONLY. Leave all other tails on, removing the bone by splitting the tail part of the way down if necessary. It is best to remove the tail bone to prevent tail from becoming tainted. Especially on fine or high priced skins. Leave all legs on Lynx.

The following kinds of skins should be taken off OPEN: Raccoon, Bear, Badger, Beaver, Wolverine and Wild Cat (Mountain Lion or Lynx Cat may be taken off either open or cased). In taking off skins OPEN, they should be cut down the center of the belly from chin to tail. See that no fat or meat is left on the skin. Stretch respective skins to shapes shown in picture and dry carefully.

Raccoon—Should be taken off open. This style of handling is popular with the northern trappers.

Mink—Should be cased pelt side out, but suggest casing the fine dark skins from extreme north fur side out.

Black Skunk
Narrow Stripe Skunk

Short Stripe Skunk
Broad Stripe Skunk

All skunk should be cased pelt side out.

Opposum—Should be cased pelt side out.

Square Handled Coon—This is one of the best shapes for Coons, especially for central and southern sections. It is very popular with all manufacturers.

Land Otter—Should be cased pelt side out, except we suggest that fine dark skins be cased fur side out.

Silver Fox—Should always be cased fur side out.

Red Fox—Should be cased fur side out.

Ermine (or White Weasel)—Should be cased fur side out.

Beaver—Should be open and stretched as nearly round as possible.

White Fox—Should be cased fur side out.

Cross Fox—Should be cased fur side out.

Lynx—Should be cased fur side out. Leave all legs on.

Civet—Should be cased pelt side out.

Ring Tail Cat—Should be cased pelt side out.

Fisher—Should be cased fur side out.

Wolf—Should be cased fur side out from mountain and northern sections, and taken off open from western and southwestern sections.

Sea Otter—Should always be cased fur side out.

Muskrat—Should be cased pelt side out.

Marten—Should be cased fur side out.

How to Judge Why Prices Fluctuate.

Raccoon—Suitable for coat-making, are selling well to Canadian manufacturers, where most of the coon are consumed.

Mink—Is an article of merit, especially fine, dark skins, and at the reduced prices ought to move freely, though it has had a long run with fashion. They should continue steady on present basis.

Skunk—Are still in big supply in Europe, but with the low prices it is to be hoped it will move the article more freely, and with better results. A good trade is looked for.

Opossum—Like Skunk, have lacked support, but at present figures should prove an attractive article for low-priced manufactured goods. A steady demand at present prices is expected. Don't ship trash opossum.

Red Foxes—Are in right good demand, both for America and Europe for dying. Cross Foxes are doing fairly well, but not so well as Red Foxes.

Black and Silver Fox—Of fine dark color and rare specimens, are wanted, and such skins bring fancy prices. There is an over supply of inferior skins that sell only at reduced prices, and dull at that.

White and Blue Fox—Full furred, clear-colored skins, in good demand at very good prices.

Wolf—Is in good demand, especially full furred Northern skins, at good prices.

Lynx—Has been one of the best sellers on the list. Fashion has favored it materially. Dyed and tipped, it makes a fine-looking garment, as well as a reasonable one in price.

Beaver—Is practically unchanged. Demand is principally for pale sorts. Dark skins do not sell as well.

Otter—At the present values ought to move freely, and prove a better article. The dark skins are in best demand.

Muskrat—Has been a great seller in Europe, and in America, too. The prices are high and should be a profitable skin for trappers this season. An increase in catch is looked for.

Wild Cat, Badger and Ringtail—Are lower, but not in excessive supply. Last year's prices were unreasonably high.

White Weasel—Has been more or less overestimated, and will doubtless rule lower in price. It does not compare with genuine Ermine, which it is used to imitate.

Marten—With other fine, high-priced furs, have been somewhat neglected. Prices are necessarily lower. Caution should be used in buying new catch, especially poor, pale skins.

Wolverine, Fisher and Sea Otter—Are limited in supply and prices practically unchanged.

Variation in prices depend largely upon demand and supply, overstock of certain grades—lowest prices; while where the demand exceeds the supply, it boosts them.

HINTS IN TRAPPING AND SELLING FUR.

The current high prices for furs have started out a good many men and boys as trappers who hitherto have given little attention to the matter. Customarily we associate the idea of the trapper's art with wide reaches of wilderness country; but, as a matter of fact, a very large percentage of the commercial fur supply comes from countries that may be called civilized and long-settled. Especially is this true of such furs as those of the fox, muskrats, mink, skunk, raccoon and opossum. Otters and beavers are usually found in remote districts and the same is true of the marten. The farmer boys of the Middle and Eastern States, who put in odd hours during the winter, produce in the aggregate a vast amount of fur and their catch today runs into a lot of money.

The farmer boy, or even the old professional trapper, would make more money if he could get a square deal from some of those who buy his furs. The buying side of the fur trade is unique. The shipper is obliged to depend upon the honesty of the dealer, and some dealers have no hon-

esty. This, of course, is not in the least true of reputable firms. It does not apply to the great fur companies which today collect their furs at their own outlying posts and ship them to themselves at their foreign depots, as they did a century or more ago. None the less the country is full of fly-by-night dealers who advertise in most alluring fashion. There are peripatetic fur collectors whose methods are not much different from or better than those of the men who remain in the big cities and send out gold-brick literature.

The dishonest commission man has stolen millions of dollars from the producers and shippers. This is true in farm products, fur products and pretty much everything else that offers any opportunity for fraud. The methods vary slightly, but the result to the shipper is pretty much the same. Some of these fur houses have been known to never make any returns whatever to a shipper, but simply disappear. If they have succeeded in deluding a dozen or two of trappers to send in their year's take they have done a good business at the modern prices. Others, again, give the trapper a little something to keep him encouraged. Of course one of their common customary dodges is to report that the goods were badly damaged when received. The shipper cannot prove anything to the contrary and is entirely in the hands of the dealer whom you must know is reliable.

The Work of the Grader.

A good grader is the moneymaker in any fur-buying house, as he is in any concern that buys the products of farm or wilderness. It is an easy thing to send out circulars to trappers, quoting prices a third higher than those that honorable dealers offer. Of course such prices cannot be paid on the market, hence the necessity for the grader. When the trapper gets his returns on his shipment he finds that all of his dark mink and marten were graded light or pale-dark, although he himself knew very well that he had a lot of fine prime dark skins in his shipments. Again, perhaps the shipper may not know the distinction between

light, pale-dark, medium and dark, and he may think that his skins ought to have been graded higher than they were, when, as a matter of fact, the expert could not fairly classify them higher.

The matching and grading of furs is an art in itself, at which the amateur can readily find himself inexpert. The tare, however, has to come out of the shipper. If a big house that makes up fur garments buys five hundred marten skins it may offer a flat price of thirteen dollars for the lot, including all skins, from those of the prized blue shade to the coppery ones only suitable for blending or dying. Nearly all marten or sable garments are blended and are very much darker than any natural fur. Perhaps the country shipper may take that flat price. Yet in the lot there may be a few dark skins worth twenty-five dollars each and perhaps twice that many that will be graded medium. Out of these dark skins the manufacturer will make up his fancy pieces—say, a stole and muff composed of twelve skins, retailing at several hundred dollars. These prices are a long way from what the original producer of the fur got. About the only recourse he has is that which is left to any other man engaged in business in this vale of tears. He must learn the values in his own business from the ground up and he must invoke the aid of competition. Co-operation is not possible for him. **When once he has found a dealer who treats him squarely he should stick to that dealer.** When he knows that he has a choice piece of fur he ought not to be in a hurry to sell. Sometimes it pays a trapper to get on the train with his catch and go to the city himself. When he has had several graders pass on his catch he can have a better idea what he should get for it.

The time has gone by when a fur collector can buy a choice marten for a string of beads. The average trapper is getting educated; even the Indians of Alaska and the upper wilderness now hold out for big prices for their fur. None the less, some houses, widely known as buyers and called honorable, take just a little from the trapper both in grading and in pricing. A few cents held out on each skin make a handsome total when the receipts are many hundreds each day. The big houses usually work to a certain scale of profit and their graders must make this good. The

unscrupulous ones have all kinds of systems for beating the shipper. For instance, if the latter makes a howl about being told that his goods were received in poor condition, sometimes inferior furs are substituted and returned to him in place of those that he shipped. What chance has the trapper to prove the facts in a court of law? Suppose a shipper turns in a fine bunch of rat—call it a hundred skins—on each of which he expects to net fifty cents. The dealer returns him forty-seven cents a pelt, knowing that the skins grade high. It is not much of a steal and very likely the trapper stands for it; but this, kept up all day when thousands of ratskins are coming in, makes a lot of money. Some of these rapacious dealers grow bolder and bolder in their stealing. Again, some dealers advertise that they will pay the expressage on all shipments of furs sent to them. This looks good to the trapper or farmer boy, and he does not stop to reflect that, as a matter of fact, he himself is going to pay that expressage, somehow or somewhere, either in grade or price.

Hence when you seek a dealer, be sure it is the most reliable old-time house that can absolutely be depended upon.

Tricks of the Trade.

Considerable fur is collected by country storekeepers. They buy the chance pelts brought in by farmers, who also turn in wool, beefhides, rabbit skins; and the like. The hides have grades the same as furs, and it is not in the least unusual for unscrupulous dealers to falsify grades in hides and to make substitutions in shipments to brokers. Sometimes a shipment of wool or hides is purposely thrown in with a lot of other stuff of much inferior grade. The returns are then made on the average, or on the inferior grade, and not on that of the higher-priced shipment. In other words, the great commercial institutions of the city are playing for safety all the time and averaging their grades, offsetting one shipper against the other. This means that the receipts of John Smith, in Ohio, are less than they ought to be because John Smith, in Oklahoma, has sent in furs of a poorer quality. There is, of course, no justice in this sort of thing:

The Deadly Skunk Trap.

A death-dealing trap is a good thing in handling a skunk, although sometimes a deadfall will not prevent the animal from emitting the effluvium. A choking trap very often will leave the animal odorless. The banks of streams are usually desirable for the trapping of this animal. You will probably place your mink traps along the edges of little creeks, in paths in the grass, or around heaps of driftwood, where you find signs. A mink is a great creature to run into hollow logs, holes and cavities of all sorts. You can even dig a hole in which to set your trap, although, if you change the earth much, it is better to throw water over your operations. A trap set at the openings to culvert drains has a big percentage of success. Mink also live under newly broken sods which the plow has left thrown up in ridges.

The mink is a great traveler, especially after the late days in February, which is the running season for this animal. As it is hard to trap out all the mink in the country, even though it be in a long-settled farming region, the mink is well worth figuring on in the winter's profit list. After the running season begins it is desirable to use mink scent. This can be made from the musk-glands of the mink, which should be preserved and bottled. A small twig dipped into the liquid and dropped below or near the trap will be found sufficient. Of course, any flesh bait, like the head of a bird, a piece of rabbit or of fish, is attractive to the mink, but a little scent will usually help. A good way to use scent is to take elder-pith and drop on it a few drops of the liquid. A little piece of pith left around a trap or along the line will attract animals from great distances. The mink is easy to fool in this way. He will run up a log or a stump very readily. A good way to catch him is to set your trap on a little log, put on end so that it will never be buried by the snow. The trap is protected on top of this by a little house to keep out the snow. The trap that you set for mink and bait with pieces of meat has a good chance of getting a skunk, although the ground-set is better for this animal.

It is very well known that most fur-bearing animals are themselves hunters and all hunting animals would rather eat live bait than dead. Here we come into the nice question of what is and is not cruelty. Anglers for ages have used minnows and frogs

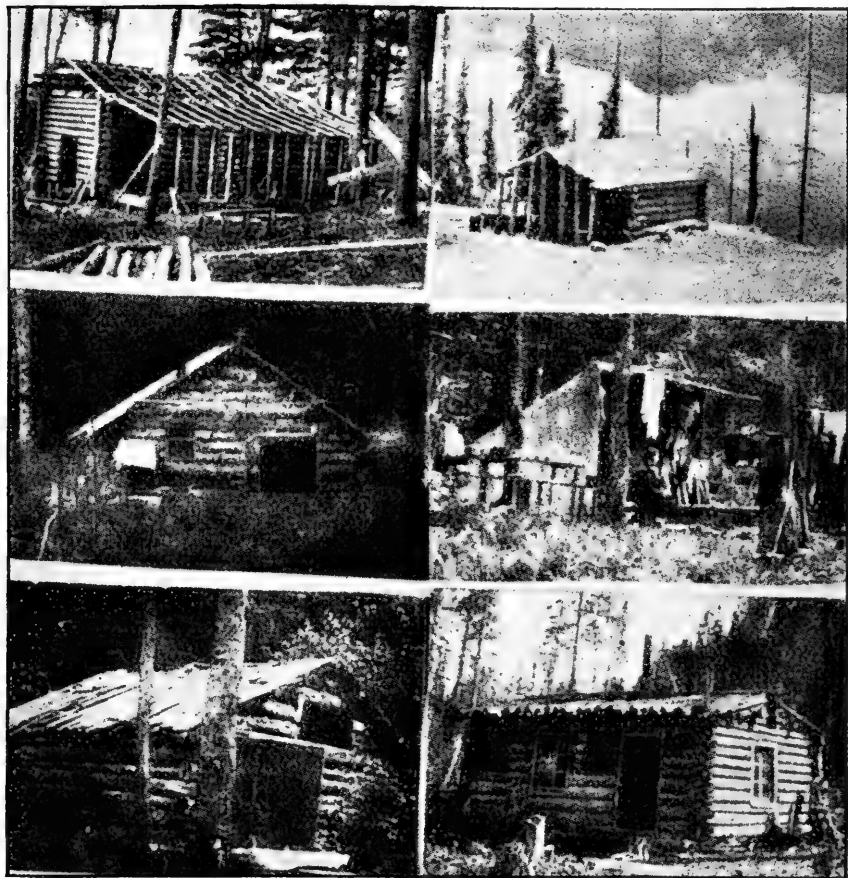
as bait and we have become accustomed to that practice. Sometimes a live frog or even a live minnow can be used as bait in a water-set; and if you can keep alive until winter—in a live-box—a lot of frogs, minnows, crawfish, and the like, you will find them very good for use in wintertime, even if you have to freeze them then. One trapper, who counsels this, advises the use of sparrows as live bait. He also counsels the employment of field mice, and suggests calmly that these can be secured as bait and kept alive by running a wire through the gambrel of the leg. The brutality and absolute lack of humaneness in this suggestion find little condonement in the retort that still more cruel things are done in fishing and shooting. If live bait is used it should be used unconfined and unharmed. There seems to be nothing intolerable in the thought of taking a rabbit in a box trap or even of taking a mink in a steel trap, but when it comes to using a live rabbit in a swing-door trap, as a bait for mink, a sort of sense of horror comes upon one at once. Most trappers, thank Providence, do not care to bother with live bait, although there is no doubt of its attractiveness.

A marten is another predaceous little traveler, more of a climber than the mink, but also a great hunter among thickets, logs, and such things. In very cold weather it is well to pad your steel traps with deer hair, if you have any, to keep them from freezing or from stiffening up with snow. Throw a few leaves or trash over the trap and house it so that it will not be buried in the snow. Bait with pieces of fish or bird and, when possible, use a spring pole to throw the marten in the air when it is caught. This is better with skunk, also, although not for the same reason. A suspended skunk is more apt to be peaceable, and a suspended marten is less apt to have its twenty-dollar coat eaten by some other animal. A fisher, or black-cat, or fisher-cat is larger than either of these animals, but in habits not very dissimilar; and the set for this animal should be about the same as the ground-set for marten or mink, although it is very much more powerful than either.

Trapping Water Animals.

Large water animals, like the beaver or otter, ought to be trapped in such a way that they will drown themselves promptly after being caught. The old way of setting an otter trap was

Trappers Huts—How to Build.



The Picture Tells the Story—
A Few Tools and Plenty of Hard Work
Does the Rest.

to press down into the water a long pole, along which the ring of the trap-chain played freely. A crotch or two was left sticking out under water, so that when the ring of the chain slipped down over the crotch it would not pull upward again. The animal, thus held under water, would soon drown. Sometimes it is not easy to get a pole of this kind. To supply this deficiency an ingenious trapper has put on the market a substitute that is superior to the old device. This is simply a piece of wire that runs from the trap down into the water, where it is stretched by a stick or by heavy stones. Toward the lower end in the water a sort of spearhead or barb of metal is laid, which precisely takes the place of the old crotch. The trap-ring slips down the wire, of course, very readily, but not back.

Probably rats and mink will make the best average profit for the boy or man who likes to get out in the wintertime. He can get baits enough from the home kitchen in default of anything better—fresh meat, chicken heads, and the like. Muskrats can be attracted with a mussel, left with the shell open. Sweet-flagroot, pieces of cornstalk, apples, parsnips, carrots, turnips—all will attract the muskrat. One trapper even suggests thorn apples. The muskrat is very liberal as a signmaker and is easy to trap, whether at houses or at runways and landing places. You can use vegetable bait, such as apples or persimmons, as well as fresh meat or pieces of fish, to catch the opossum. It prowls around logs and tree-tops, something like a raccoon, which latter animal is also easy to inveigle with vegetable bait. In these days even raccoon and opossum work up handsomely into near-sable, although the trapper very probably will not get nearly a sable price for them.

The Muskrat and the Parsnip.

Ferguson led the way to a small vine leading down to the river. There he pointed out a half sunken coal oil barrel which held four muskrats. The fuzzy creatures began a terrible scrambling as the trapper leaned over the barrel. But they could not leap out, neither would their claws catch and hold in the oily sides. Over the barrel was suspended a lone parsnip.

"That's the cause of their downfall," he said. "Muskrats .

will smell a parsnip 500 yards, and if there's anything they like better 'n parsnips it's more parsnips. They come to this barrel, crawl up on the outside, lean forward to get hold of that parsnip, and fall in. I've caught as many as nine in a barrel in one night. Their furs bring the most money in February and March, because the hair is tighter in the skin during that time.

"Now, the coon is the cut-up of the woods. He has more deviltry in him than all the other animals put together. He's always meddling into something he knows nothing about. Knowing that meddlesomeness, we catch him without trouble."

Ferguson led the way to a log on the side of a hill. In it he had bored a hole about an inch in diameter and had poured some honey into the opening. Then he had driven horseshoe nails in a slanting direction, so that the points extended into the hole. A coon might shove his foot into the hole with ease, but when he tried to pull it out again, the points of the nails caught in the flesh. Then Mr. Coon was a prisoner.

"He'll eat off his foot to release himself from a steel trap," Ferguson said. "Did you ever set a bucket of water down beside a pet coon and watch his antics? The first thing he'll do will be to climb on the side of the bucket and feel all around the bottom for crawfish and mussels. If you tie a piece of tin or anything bright to a steel trap, he'll go to fooling around it to see what the bright thing is. He just can't keep from meddling.

"The most plentiful of all animals in the Ozarks is the 'possum. Trappers watch it for weather signs. If its fur is thick and heavy, they say it indicates that a heavy winter is coming. If it is light and loose, the winter will be light. When it is seen taking great loads of leaves into its hole, it is an indication that a hard winter is ahead.

"During extremely cold weather men frequently skin 'possums down here and slip their feet into the hides, wearing them instead of shoes. Those 'possum hides are warmer than the warmest shoe ever made. Does look queer, though, seeing a man come down the road wearing a pair of 'possum hides for shoes."

The "Carpenter of the Woods."

The hardest animal to hold after it is caught, is the beaver. This "carpenter of the woods," as it is called, will eat off the lower part of its legs to escape from a steel trap.

"The best system I've ever found," the old trapper said, "is to set a steel trap on a dam, one end wired to a big stone and the other to a log. When the beaver is caught and is thrashing around the trap he'll push the stone into the river, be dragged in himself, and drown while trying to eat his foot off. Unless the trap snaps him far up on the leg, he's bound to get away if you give him time."

Almost any day during the week the hunters and trappers may be seen going into Lebanon with packs of skins for market.

"We get fully 5,000 skins each season, We get as many more of muskrats, coons, and 'possums. Probably a dozen otter are brought in to us and some 400 or 500 mink. One man caught twenty-nine mink last winter, and another came in with eighty, but I think he had bought most of them from other trappers. Fox and wolf hides are fairly plentiful. Once in a while we get catamounts, and very often wild cats. We will handle between \$15,000 and \$25,000 worth of furs in this locality each season. The Ozarks are teeming with valuable furs, and I believe fully 500 men support their families each winter by trapping."

The flesh of few of these beasts is good to eat. The 'possum is supposed to be savory, but, on account of the excessive amount of fat, a few "messes" will do for a season. The flesh of the muskrat, wild cat, catamount, wolf, fox, and beaver is unfit for use. However, a trapper in the Ozarks has no trouble while tending his traps in killing enough squirrels, rabbits and other small game to keep the larder stocked. Here and there throughout the forests you find a lone cabin, rustic, comfortable, and crude.

"If we get enough hides to bring \$25 a month we live just as easy and a blamed sight more happy than you fellows who make your hundreds in the city. We feel just as much out of place and lonely when we get to town as a catamount in a cage. The open air, freedom of the woods, enough to eat, and clothes to keep us warm, will do. You fellers may have the rest."

TRAPPING IN THE OZARKS.

Down in the Ozark mountains 500 families, probably more, are living this winter on the sale of furs and hides. Five hundred men are trapping for animals whose skins go to warm the arms and throats of women and make overcoats for men. Mink and beaver and otter are being caught, and hundreds of martens, muskrats, civet cats, possums, and coons are going into market.

Trapping in the Ozarks is, to the outside world, an unappreciated industry. Not many people know that some of the finest Western mink furs, the softest otter and beaver, come from the hills of southern Missouri. Down in those tangled forests along the Niangua and Osage rivers wild animals abound.

Fully fifty men making and laying traps for game, catching otter and mink and beaver.

"They charge the city women \$200, they tell me, for a little bunch of mink furs. The most we ever get for one of the critter's skins is \$4. Who gets the profit?"

The following table tells what the trappers receive for "green," or untanned furs:

Otter, \$2 to \$15.

Beaver, \$1 to \$10.

Mink, 50 cents to \$4.

Wolf, 50 cents to \$2.

Red fox, 50 cents to \$2.

Skunk, 25 cents to \$1.50.

Coon, 20 cents to \$1.

Gray Fox, 25 to 75 cents.

Wild Cat, 10 to 60 cents.

Catamount, 10 to 60 cents.

Opossum, 10 to 60 cents.

Civet Cats, 10 to 20 cents.

Muskrats, 5 to 20 cents.

Deer, \$1.50 to \$2.50, bought by weight, usually at 25 cents a pound.

The range in prices is occasioned by the varying quality of the furs.

Near Ha-ha-tonks, the estate of the late Snyder, many trappers are staying this winter in their quest of furs. Ha-ha-tonka is in the wildest part of Camden county, thirty miles from a railroad. It is reached only by a rocky, tortuous road, that winds out from Lebanon and is a good day's drive from the town. The roughest of the Ozark hills and the deepest of the canyons are in this vicinity. Wild deer roam these hills.

Spending much of his time in the heart of these woods, is a hunter, fisher and trapper, who for the greater part of forty years has made that country "home." He knows each cut and hill. He knows the haunts of the wild turkey and the deer, and the likeliest places where other game is found. He has trapped in all parts of southern Missouri. He talks interestingly of wild animals and how they are caught.

"Trappin's not what it used to be down here, People coming in on all sides have driven the game back. Still, you can get track of deer and wild turkey and wild chicken, too. The otter are rapidly disappearing, as are the mink and beaver. A few more years and the trapping days in Missouri will be over.

"The hardest thing in all the Ozarks to catch is the otter. Its burrow begins beneath the water's edge and slants upward, and there is no way to tell where these burrows are. But if you watch closely along the river bank you'll see a smooth slide leading down into the water. In the winter these slides become covered with ice. Set a steel clutch trap on this slide and wait. In a few days an otter will dart down it. He'll bump into the jaws of that clutch and have business there until you release him. A trapper will do well if he catches four or five otter in a season.

"It is hunger that brings most animals into traps. Curiosity gets some. A piece of rabbit or bird will lead a mink beneath a deadfall. The same bait will attract the civet cat and the groundhog. But this kind of game won't go with a dozen other animals down here, you got to know what's what."

TRAPPING IN ILLINOIS.

Fur Bearing Animals That Are Caught East of the Mississippi.

The "varmints" are by no means exterminated in the territory east of the Mississippi river. Morgan county is the center of the trapping industry of Illinois. Four men who have their headquarters near the Illinois river handle \$100,000 worth of pelts each year, all going to London and other European points.

These skins come from all sections of central Illinois, and the annual shipment numbers about 150,000, principally of raccoon, skunk and muskrat. About 500 fox hides are received each year. The number of mink skins runs up to 10,000.

Wolf pelts and skins from the common house cat, the latter being used in the cheapest class of coats. Muskrats are the most common fur-coated animal and over 75,000 meet an untimely fate every year in this state.

Trappers find that the muskrats are the most easily caught, and they help to increase the hunters' income when more profitable animals are scarce. The Morgan county firm ships no less than 30,000 skunk skins abroad each year. When the hides are purchased from the trappers they are fitted over a pole resembling an ironing board and the cleaners scrape off with drawing knives the bits of flesh which adhere to the skin. These scraps form a big source of profit, for from mixture of skunk, raccoon and opossum flesh is boiled a harness oil which nets about 40 cents per gallon. The pelts are packed in bales five feet long and contain all the way from 800 to 2,000 pelts, according to size.

The shipping charge is a heavy item of expense, owing to the distance. Many attempts have been made in various parts of Illinois to establish skunk farms and raise the animals for their hides, but it is said that this scheme has never proved profitable for the reason that the cannibalistic instincts of the parents cannot be restrained, the young being eaten by the old animals soon after they are born. It is also difficult to prevent the animals from escaping by burrowing under the wire inclosures.

Steel traps are the common means of taking fur today. There is a steel trap on the market, or rather a trap made of steel, which catches an animal around the neck and chokes it to death; and there are one or two traps made that deal the animal a blow upon the head at the moment the trap springs. This is something like the principle of the old deadfall, which always was far more merciful than the steel trap. These different forms of death-dealing traps are worth investigating, if only for the reason that the live animal will sometimes eat off its own foot and escape from the trap.

Water animals, like muskrats, otters, mink, and the like, soon drown when held below the surface of the water. You can make for yourself, out of wire screening, a trap with a swinging gate, like the multiple rat trap. By using this at the entrance of rat houses or channels you can very often catch a number of rats at once or sometimes more than one mink. The rats very soon drown. You can use box traps of this sort, made out of screening, to catch land animals, but then you must cover up any metal parts with dirt, leaves or trash as much as possible, excepting the body of the trap itself, which will be all the better for the light shining through it.

TRAPPERS' AND HUNTERS' SECRETS

The following secret applies to all animals, as every animal is attracted by the peculiar odor in a greater or less degree; but it is best adapted to land animals, such as foxes, minks, sables, martens, wolves, bears, wild cats, etc.

Take one-half pound strained honey, one-quarter drachm musk, three drachms oil of lavender, and four pounds of tallow; mix thoroughly together. The above preparation will attract all kinds of animals.

TO CATCH FOXES

Take oil of amber and beaver's oil, each equal parts, and rub them over the trap before setting it. Set in the usual way.

TO CATCH MINK

Take oil of amber and muskrat's oil, and rub over the trap. Bait with fish or birds.

SCENT BAIT FOR CATCHING FISH

Put the oil of rhodium on the bait, when fishing with a hook.

TO CATCH FISH

Take the juice of smallage or lovage, and mix with any kind of bait.

CHINESE ART OF CATCHING FISH

Take Coccus Indicus, pulverize and mix with dough, then scatter it over the still water where fish frequent. Fish will seize it with great avidity, and will become so intoxicated that they will turn belly up on top of the water, and as you gather them put them in a tub of clean water, and presently they will be as lively and healthy as ever.

This means of taking fish, and the manner of doing it, has, heretofore, been known to but few. The value of such knowledge admits of no question. This manner of taking fish does not injure the flesh in the least.

RATES OF SPEED AT WHICH BIRDS FLY PER HOUR

Birds	Miles.
Hawks	150
Sparrows	92
Ducks	90
Falcon	74
Crows	25

Fair winds make their flight much more rapid.

BROWNING AND BRONZING LIQUID FOR GUN BARRELS

Aqua Fortis and Sweet Spirits Nitre each half an ounce, Sulphate Copper 2 ounces, Water 30 ounces, Tincture Muriate Iron one ounce.

Mix and apply as above.

STAIN FOR TWISTED GUN BARRELS

Take of Tincture of Sesquichloride of iron half an ounce, corrosive sublimate one drachm, sulphate of copper half a drachm, nitric acid one drachm to one drachm and a half, spirits of wine six drachms, water eight ounces. Dissolve the corrosive sublimate in the spirits of wine, then add the solution to the other ingredients, and let the whole stand for a month or six weeks, when it will be ready for use.

The barrels to be stained should first be carefully cleaned with lime, and, this being removed, the browning mixture is laid on with a sponge five or six times a day, till the color is dark enough to suit the fancy. Once or twice a day a scratch-brush should be used to remove the rough oxide, and allow the acid to get a deeper bite. When it is considered that enough has been done, boiling water must be poured over the barrels for several minutes, and, while hot, rub them with flannel, and finish with a leather and a little beeswax and turpentine.

WOODS FOR FUEL

Taking shellbark hickory as the highest standard of our forest trees, other trees will compare with it in real value, for fuel, as follows:

Shellbark Hickory.....	100%
Pignut Hickory.....	95%
White Oak.....	84%
White Ash.....	77%
Dogwood.....	75%
Scrub-Oak.....	73%

White Hazel.....	72%
Apple Tree	70%
White Beech.....	69%
Black Birch.....	65%
Hard Maple.....	65%
Black Walnut.....	62%
Yellow Oak.....	60%
White Elm.....	58%
Red Oak.....	56%
Red Cedar.....	56%
Wild Cherry.....	55%
Yellow Pine.....	54%
Chestnut.....	52%
Yellow Poplar.....	51%
Butternut.....	43%
White Birch.....	43%
White Pine.....	30%

CHARCOAL POULTICE

Make a bread and water poultice in the usual way, then sprinkle finely powdered charcoal over it, and apply. Valuable for cleansing old sores, and for arresting mortification.

MUSTARD POULTICE

Mix ground mustard with boiling water to the consistency of paste; spread on thick linen, or brown paper, covered with thin muslin. Apply for a few minutes only, unless it is necessary to produce a blister. Used chiefly as a counter-irritant in acute pain and congestion.

SLIPPERY-ELM POULTICE

Powdered elm bark and boiling water formed into a thin paste. Sometimes a small portion of laudanum is added, which makes a grateful application to abscesses, felons, painful bruises, etc.

STARCH POULTICE

Make a smooth, moderately thick paste of starch and boiling water in the usual manner, and spread upon linen cloth. Useful in cases of irritable and inflamed skin eruptions.

POISON IVY AND SUMACS

There are two poison Sumacs—the Poison Ivy and the Swamp Sumac. Poison Ivy can be told from Woodbine, because it has three leaflets instead of five.

The Sumac which bears its red fruit aloft is harmless. The Sumac which has drooping greenish-white flowers is poison.

Note—The specific cure for Ivy and Sumac poisoning is a saturated solution of sugar of lead in a 75 per cent. solution of alcohol.

Poison mushrooms all have the bulbous enlargement at the base of the stem; some have cup-like joints, and most are showy and flaunting, with white gills.

The common meadow mushroom is small and modest, has pink or purple gills, **and never has bulbous enlargement or cup-like joint.**

THE TALE OF A WOLVERINE

Oh, woful the wail o' the wanderin' wolf

When the pack hez scattered afar,

An' they turn to the shades from their midnight raids

At the glint o' the mornin' star!

An' thrillin' withal the amorous call

Of the moose to his mate unseen!

But these all pale at that horrible wail—

The cry o' the wolverine!

We've trapp'd an' tracked, canoed an' packed

This Northland everywhere,

Hev made our bed with th' furs o' the dead

An' th' robes o' the grizzly bear.

We've shot the 'coon when the light o' the moon

Threw his form on the leafy screen,
But our trusty gun has got but one
Square crack at a wolverine.

It was Kootenay like, if we don't mistake,
Saw our camp in eighty-five,
An' the fust three weeks brought nine bear steaks
An' beaver forty-five;
Till our line o' traps—too long, perhaps—
In miles some seventeen—
Was robbed each night, be it dark or light,
By a cuss of a wolverine.

Then we swore by the sling ol' Nimrod swung
An' the ball pouch o' Napper Bill—
Blow high or low, no rest we'd know
Till the varmint we should kill!
An' nex' night's snow did plainly show
Where our enemy had been,
For that thievin' chap had cleaned each trap—
That gluttonous wolverine!

We followed his trail by hill an' dale
The best of a winter's day,
Till our faithful dog by a swampy bog
Brought the crafty beast to bay!
How he yowled an' yapped an' snarled an' snapped,
As we wiped the peep sight clean!
Then a sure soft point threw his neck out o' joint
An' that settled that wolverine!

By the camp fire's roar on the lake's wild shore
The trapper counts his spoil
An' views with pride each well trimmed hide
As he rests from his hardy toil.
Ah! those care free days o' the woods an' their ways
Still live in our memory green,
Like the pride we felt with his pelt at our belt—
The hide o' that wolverine.

POISONOUS REPTILES IN THE UNITED STATES

Compared with the number of species of harmless snakes, the poisonous species are much in the minority; yet it should be understood that the United States is wonderfully rich in reptile life. One hundred and eleven species of snakes are found in this country; of this number seventeen are poisonous. Besides, there are ninety-seven species of lizards; but of the latter only a single species is venomous, and this is the Gila Monster, of the Southwest.

Practically every portion of the United States is inhabited by poisonous snakes. The majority of the species are found in the southern latitudes, though the few northern species are so abundant that venomous snakes are actually more common in some sections of Pennsylvania and New York than in the South.

Despite the general occurrence of dangerous reptiles in this country, accidents to man are rarely recorded. This may seem remarkable in the fact of an explanation, that there are over twenty thousand deaths annually in India from the bites of serpents. But it should be realized that in India a large part of the population goes about bare-legged, while the poisonous snakes prowl into the immediate domains of man—even into the gardens and under houses.

List of North American Poisonous Serpents

From the standpoint of classification the venomous snakes of the United States fall into several groups. Following is a list to show their arrangement and kind:

Elapine Snakes

Common Coral Snake, *elaps fulvius*, the Southeast.

Sonoran Coral Snake, *elaps curyxanthus*, the Southwest.

Crotaline Snakes

1. The Moccasins

Copperhead Snake, *ancistrodon contortrix*, eastern U. S.
Water Moccasin, *ancistrodon piscivorus*, the Southeast.

2. Dwarf Rattlesnakes

Massasauga, *sistrurus catenatus*, Central Region.
Pigmy Rattlesnake, *sistrurus miliarius*, the Southeast.

3. Typical Rattlesnakes

Timber Rattlesnake, *crotalus horridus*, eastern U. S.
Diamond-Back Rattlesnake, *crotalus adamanteus*, the Southeast.
Prairie Rattlesnake, *crotalus confluentus*, Prairie Region.
Pacific Rattlesnake, *crotalus oregonus*, Pacific Region.
Texas Rattlesnake, *crotalus atrox*, Texas to California.
White Rattlesnake, *crotalus mitchellii*, the Southwest.
Tiger Rattlesnake, *crotalus tigris*, the Southwest.
Black-tailed Rattlesnake, *crotalus molossus*, the Southwest.
Price's Rattlesnake, *crotalus pricei*, the Southwest.
Green Rattlesnake, *crotalus lepidus*, the Southwest.
Horned Rattlesnake, *crotalus cerastes*, the Southwest.
From the preceding list of the typical rattlesnakes it will be seen that the Southwest forms the headquarters of these characteristic serpents.

Classification of Our Poisonous Snakes

As will presently be explained, the North American dangerous snakes may be easily distinguished—except two, and these are the Coral Snakes, having a slender body and a head not at all distinct from the neck; in fact, looking precisely like the harmless reptiles. And they actually belong to the same family as the innocuous serpents—the **Colubridae**. This family is divided into a number of subfamilies. The cobras and their deadly allies of the Old World,

and the Coral Snakes of the New World form one of these subfamilies—the **Elapinae**. From the typical harmless snakes they differ only in the possession of a very short, fixed pair of venom-conducting teeth in the forward part of the upper jaw—and by the absence of a small scale on each side of the head (the **loreal plate**), between the eye and the nostril. Fortunately, such deceptive-looking reptiles are limited to two species in the United States. As they are peculiarly colored, they may be recognized with little difficulty.

How to Tell the Coral Snakes

Both of the species of the **Elaps** inhabit the southern part of the country. The Common Coral Snake or Harlequin Snake occurs from southern North Carolina to Florida and westward to Texas. It is most abundant in Georgia, Florida, Alabama and Louisiana. The Sonoran Coral Snake is restricted to Arizona, New Mexico and northern Mexico. Both of the species are vividly **ringed** with scarlet, yellow and black—the red and black rings the broadest. Their pattern is wonderfully beautiful, imparting a really artificial aspect, like a gaudy necklace.

Described in detail, the pattern of the Coral Snakes may be given as **broad, alternating rings of red and black, the latter bordered with very narrow rings of yellow**. And here we encounter a difficulty: for several harmless snakes “mimic” these species in displaying exactly the same colors and arranged in ring-like fashion. Yet there is one unvarying difference that will always distinguish the dangerous reptile from their innocuous “imitators,” **as the yellow rings of the poisonous snakes always border the black rings, while among the non-venomous snakes there are pairs of black rings bordering a yellow one**.

The Coral Snakes are rather secretive in habits and are often ploughed up in the fields. They feed mostly upon small species of innocuous serpents.

The Poison Apparatus

The Crotaline Snakes, the Rattlesnakes, Copperhead and the Moccasin may be easily told. Before dealing with their characters let us understand what kind of apparatus figures in the formidable injuries they inflict, sometimes causing death, with man in a few hours—and, more rarely, within a few minutes' time.

These snakes do not sting. The injury they inflict is a **bite, dealt with a pair of hollow teeth on the upper jaw.** These teeth have an opening at their tip for the ejection of venom. They are exactly like the hypodermic needles, and mankind has, in fact, copied the structure of the serpent's fangs in manufacturing that invaluable instrument of medical surgery.

Each fang connects with a gland behind the eye, and this secretes a poison which nature has intended to be used in purposes of killing the prey—incidentally for self-defense. When the mouth is closed the fangs fold back against the upper jaw.

Thus we may understand the venom apparatus. It is in no way connected with the forked tongue. That organ is used solely for the purpose of feeling; hence it is not a sting.

How to Distinguish the Crotaline Snakes

As will be seen on the list, we have three groups of venomous snakes in North America—the coral snakes, the moccasins and the rattle-snakes. The characteristics of the coral snakes have already been treated, while we may dispose of the rattle-snakes with a simple suggestion and that is to **look for the rattle**, a prominent and an absolutely unique organ among snakes. Its presence immediately brands the owner. There is no possibility of making a mistake. While there are a number of species of rattle-snakes, the characteristic naturally appeals to all. The amateur naturalist, prospector or the farmer is not so particular as to the exact

species; what they are desirous of ascertaining is, whether a snake is **dangerous**; and the possession of a rattle shows this to be invariably the case.

Thus we understand how to recognize all of the North American poisonous snakes except the moccasins—two species; they must be treated with more detail.

It is a mistake to think that a poisonous snake may be told by a thick body and a flat, triangular head that is quite distinct from the neck. Many wholly innocuous species have exactly these outlines and many of them are proportionately stouter of body and uglier in appearance than the dangerous copperhead snake or highland moccasin.

The Moccasin and the Copperhead Snake

The two North American moccasins—the water moccasin, **Ancistrodon piscivorus** and the copperhead snake (Highland Moccasin or pilot snake), **Ancistrodon contortrix**, belong, as do the rattle-snakes, to the sub-family of pit vipers—**Crotalinae**. On each side of the head, **between the eye and the nostril, is a deep pit**. Here we have a character by which to immediately determine them. But there are other points: while our harmless snakes have two rows of plates on the under surface of the tail, these two poisonous species have a single row of plates for the greater length of the tail. Our harmless snakes have the pupil of the eye round; the water moccasin and the copperhead snake have an elliptical—cat-like—pupil.

The moccasin is dull olive, with wide, black transverse bands. It abounds in the swamps and sluggish waterways of South Carolina, Georgia, Florida, Alabama and Louisiana. The copperhead snake is pale, hazel brown; crossing this ground color are rich, reddish brown bands, narrow on the back and very wide on the sides—appearing, when examined from above, to have the outlines of an hour-glass. The top of the head often shows a decidedly coppery tinge, hence the popular name.

Poisonous Snakes in the Eastern States

In the New England States and the Middle Atlantic States, there are but two species of poisonous snakes. These are the timber rattle-snake and the copperhead snake. The black snake, water snake, flat-headed "Adder," checkered "Adder," and other serpents with formidable titles found in those areas are absolutely harmless. If we include the lake region and the Ohio valley we must include another poisonous species, the Massassauga; this is a small rattle-snake of a slaty gray hue marked with a chain of deep brown blotches.

South of central North Carolina, thence throughout the Gulf States, we find several more venomous species, as follows:

The diamond rattle-snake. Largest and most deadly of any of the North American serpents. It attains a length of eight feet and is beautifully marked with a chain of yellowish rhombs on an olive ground-color.

The pigmy rattle-snake. A diminutive, slaty-gray species, closely related to the Massassauga. There are jet black blotches on the back and a reddish band on the neck.

The water moccasin. A semi-aquatic species.

The coral snake. Previously described.

Thus we have an idea of the various dangerous snakes of the eastern states. Incidentally it might be said that the timber rattle-snake and the copperhead snake range southward to the northern portion of the Florida peninsula. In the extreme south the copperhead also extends its range westward to the Rio Grande, in Texas. The distribution of the western poisonous snakes may be at once appreciated by an examination of a list on a preceding page.

Erroneous Theories Concerning Poisonous Snakes

It is quite wrong to imagine a poisonous snake springs at an enemy. It never jumps from the ground and seldom strikes more than a third its length. Poisonous snakes

never chase an enemy. Their attitude toward man is merely that of self defense.

It is not necessary for a rattle-snake to coil before striking. It can strike from a crawling position, provided the neck can be doubled into an S-shaped loop to lurch the head forward.

It is impossible to render a venomous snake permanently harmless by extracting the fangs, as a number of auxiliary fangs are ready to take the place of the functional pair within a couple of weeks.

Treatment of Snake Bite

What to carry in the field: Every field naturalist and prospector venturing into regions known to be the lurking places of venomous snakes should carry certain articles to be used in case of accident. These are comparatively simple. Following is a list of them:

A hypodermic syringe, a rubber ligature, several sharp scalpels (or a razor), a jar of antiseptic gauze, material for outside bandage (boiled cheesecloth), a jar of permanganate of potassium (crystals), several tubes of anti-toxin (**anti-venomous serum**), some strychnine tablets, a flask of whiskey.

The entire outfit can be carried in the capacious pockets of an ordinary khaki shooting jacket, if necessary. The writer speaks from experience:

What to do, if bitten: Invariably, the injury is upon some part of the arm or leg. **Everything depends upon the promptitude in performing the first two precautions.**

1st. Apply the ligature a short distance above the bite. Thus the ligature should be carried in a pocket that is immediately available, without a second's loss in a fumble.

2nd. Enlarge the punctures by cutting into them, **at least as deep as they are.** Make two cuts over each, these cuts crossing one another. This cutting starts a flow of the poisoned blood, which should be accelerated in every way possible. It is not dangerous to suck the blood away pro-

viding there are no cuts or fresh abrasions in the mouth or on the lips. In this way much venom may be drawn from the wounds. If a stream is nearby, wash the wounds thoroughly, then bathe them repeatedly in a solution composed of permanganate of potash crystals in water to produce a deep wine color.

If no doctor is nearby, the antitoxin should be injected by means of the hypodermic syringe, in some part of the body where it will gain the general circulation—preferably under the skin of the abdomen. In a succeeding paragraph it will be explained where this product may be obtained.

If constitutional symptoms develop—weakness and giddiness, a hypodermic injection of strychnine must be administered. As a stimulant, taken in very moderate quantities, brandy is invaluable.

After the wounds have been thoroughly bled and washed with the permanganate, the ligature may be removed, but not until every measure has been employed to draw the venom from the bitten part; these measures including suction and massage.

At this stage there is but one thing to do if that is possible. Journey to the nearest doctor of repute; for grave symptoms, beyond the power of any but a medical man to combat, may possibly develop.

If a doctor is out of the question, keep your head. You will need to think, and with great care. Take a cathartic. Keep the wounds absolutely clean and remember that tissue that has been weakened by snake poison is peculiarly susceptible to common blood poisoning. Pack small bits of gauze into the wounds to keep them open and draining, then dress over them with gauze saturated with any good antiseptic solution. Keep the dressing saturated and the pounds open for at least a week, no matter how favorable may be the symptoms.

The writer has talked with many men of good, practical reasoning powers, who have been bitten by snakes and entirely recovered while miles from civilization. They have employed methods similar to those described.

Before leaving the town behind you, consult a good doc-

tor. Learn how to properly use a hypodermic syringe and the amount of strychnine your system will endure.

The anti-toxin, technically known as anti-venine, is a foreign product and apparently the best of the so-called antidotes for snake bite, as it is manufactured and does its work along lines well understood and practical. It may be obtained from the agencies of the Pasteur Institute, one of which is situated in New York City.

Once again let the writer advise the sufferer:

Keep your head. Do not give way to despondency. There is every reason why a healthy man should recover, and quickly, too, from a bite from any of the greater number of the venomous snakes in the United States. But the proper means to save life should be executed promptly and systematically.

Rattlesnake Poison Remedy

Bromine	gr.	100
Diluted Alcohol	fl. oz.	8
Potassium Iodide	gr.	4
Corrosive Sublimate	gr.	2

Mix the bromine and alcohol, place the other ingredients in a vessel and add sufficient of the bromine-alcohol solution to dissolve them.

American and Canadian Trappers Association Badges.



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TRAPPERS CAMP KITCHEN AND COOKERY

Genuine Montana Steak

One pound lean mutton free from bone, 1 egg, $\frac{1}{2}$ cup milk, 1 teaspoon salt, $\frac{1}{8}$ teaspoon pepper, few drops onion juice.

Chop the meat finely, add the other ingredients, form into small cakes, and either broil or fry them. While this dish is more delicate if the egg and milk are used, it can be made without them. In this case it resembles very closely Hamburg steak as it is ordinarily prepared from beef. It may be made with or without onion.

Beef or Mutton Broth

Three pounds beef or mutton from the neck, 2 quarts cold water, 3 tablespoons rice or barley, 1 teaspoon salt.

Wipe the meat, remove the skin and fat, and cut the meat into small pieces. Put into the kettle with bones, and cover with the water. Heat gradually to the boiling point and season with salt and with pepper if liked. Cook slowly until the meat is tender, strain, and remove the fat. Reheat to boiling point, add the rice or barley, and cook until the rice or barley is tender. If barley is used, soak it over night in cold water.

Curry of Mutton or any Meats

Two pounds meat from the fore quarter, 1 onion, 1 tablespoon vinegar, 2 tablespoons flour, 1 teaspoon curry powder, salt, boiling water.

Cut off small portions of the fat and try them out. Remove the unmelted portions, and in the remainder fry the meat until it is a delicate brown. Add the onions and pour over all enough boiling water barely to cover. Cook until the meat is tender. Add the curry powder, vinegar, and salt. Remove the meat, reduce the broth to one cup, and thicken it with flour diluted with cold water. Add the meat to the gravy and reheat. Serve with rice.

Syrian Stew

Two cups raw meat or mutton cut into cubes, 2 tablespoons fat, 3 tablespoons flour, 2 cups string beans, 2 onions, 2 cups tomatoes, salt, water.

Dredge the meat with the flour and brown it in the fat. Put all the ingredients in a stewpan, scraping from the frying pan all of the flour and fat, and add enough water barely to cover. Cook slowly until the meat is tender.

Meat and Potato Pie

One pound meat from the shoulder, 1 onion, $\frac{1}{2}$ cup flour, 1 carrot, 6 medium-sized potatoes, 1 teaspoon baking powder, 1 tablespoon butter, salt.

Cook the onions, carrots, and meat together in water enough to cover. Boil the potatoes separately. Reserve enough of the potatoes to make a cup of mashed potatoes. Cut the remaining potatoes and the other vegetables and meat into small pieces, and place in a baking dish. Cover with some of the broth thickened with flour. Mash the remaining potatoes. Add butter and salt. Mix this with the flour which has been thoroughly sifted with the baking powder. Spread this mixture over the ingredients in the baking dish, and bake in a hot oven until the crust is brown. To remove the odor of mutton **soak in vinegar** over night especially if an **old male**.

Stewed Sheep's Hearts

Two sheep's hearts, 2 ounces fat salt pork, 2 tablespoons minced onion, 2 tablespoons flour, $\frac{1}{4}$ teaspoon pepper, $1\frac{1}{2}$ pints boiling water, salt.

Split and wash the hearts, season them with the salt and pepper, and roll them in the flour. Try out the pork, and add the onions to the pork fat and cook them 10 minutes. At the end of that time, remove the pork and onions to a stewpan and fry the hearts in the fat. Transfer hearts to the stewpan. Rinse the frying pan with the water, which should then be poured over the hearts. Use the flour that remains after the hearts are rolled to thicken the broth. Cook the hearts in the gravy for three hours.

Brown Gravy for Roast Meat

In making gravy for roast mutton or any other roast meat, allow 2 level tablespoons of fat for each cup of gravy desired, pouring off any in excess of this amount. To the fat add 3

tablespoons of flour and cook thoroughly, browning it, but being very careful not to burn it. Add boiling water or broth and boil for a short time, stirring constantly. Add salt and pepper. The proportions are 2 tablespoons of fat, 3 tablespoons of flour, and 1 cup of water or stock. If the flour is not browned, only 2 level tablespoons are needed for each cup.

Currant-Jelly Gravy

A gravy flavored and made acid with currant jelly is often served with roast meats. To each cup of brown gravy made from the fat of roast meat add a glass of currant jelly or less. As noted elsewhere, the addition of currant jelly is specially suitable when cold meat is to be warmed up in gravy.

Mint Sauce and Mint Jelly

One-fourth cup finely chopped mint leaves, 1 tablespoon powdered sugar, $\frac{1}{2}$ cup vinegar, $\frac{1}{2}$ teaspoon salt.

Combine the ingredients and let the mixture stand in a warm place until the flavor of the mint has penetrated the liquid.

Mint sauce, which is so generally relished with roast meats, may be made from either the fresh or **the dried spearmint**. Mint jelly, which is also popular, can be made by stiffening mint sauce with gelatin. For this purpose one-half tablespoonful of gelatin soaked in cold water enough to cover it may be used with a cup of mint sauce made as above from freshly chopped mint.

Tomato Rarebit.

Two tablespoonfuls of butter, 2 tablespoonfuls of flour, $\frac{3}{4}$ cupful of milk, $\frac{3}{4}$ cupful of stewed and strained tomatoes, $\frac{1}{8}$ teaspoonful of soda, 1 pound of cheese, 2 eggs slightly beaten, salt, mustard, cayenne pepper.

Cook the butter and the flour together, add the milk, and as soon as the mixture thickens add tomatoes and soda. Then add cheese, eggs, and seasoning. Serve on toasted whole wheat or Graham bread.

Green Corn, Tomato, and Cheese

One tablespoonful of butter, 2 cups of grated cheese, $\frac{3}{4}$

cup of canned or grated fresh corn, 1 ripe pimento, $\frac{1}{2}$ cup of tomato purée, 2 egg yolks, 1 teaspoonful of salt, $\frac{1}{2}$ teaspoonful of paprika, 1 clove or garlic, 4 slices of bread.

Into the melted butter stir the cheese until it, too, is melted. Then add the corn and pimento, stir for a moment and add the egg yolks beaten and mixed with the tomato juice and the salt and paprika. Have ready the bread toasted on one side and very lightly rubbed on its untoasted side with the garlic cut in two. Pour the mixture over the untoasted side of the bread and serve at once. A poached egg is sometimes placed on top of each portion, making a very nutritious combination.

Macaroni and Cheese No. 1

One cupful of macaroni, broken into small pieces; 2 quarts of boiling salted water, 1 cupful of milk, 2 tablespoonfuls of flour, $\frac{1}{4}$ to $\frac{1}{2}$ pound of cheese, $\frac{1}{2}$ teaspoonful of salt, speck of cayenne pepper.

Cook the macaroni in the boiling salted water, drain in a strainer, and pour cold water over it to prevent the pieces from adhering to each other. Make a sauce out of the flour, milk, and cheese. Put the sauce and macaroni in alternate layers in a buttered baking dish, cover with buttered crumbs, and heat in oven until crumbs are brown.

Macaroni and Cheese No. 2

A good way to prepare macaroni and cheese is to make a rich cheese sauce and heat the macaroni in it. The mixture is usually covered with buttered crumbs and browned in the oven. The advantage of this way of preparing the dish, however, is that it is unnecessary to have a hot oven, as the sauce and macaroni may be reheated on the top of the stove.

Macaroni with Cheese and Tomato Sauce

Boiled macaroni may be heated in tomato sauce and sprinkled with grated cheese just before serving.

Spaghetti or Italian Macaroni and Cheese

One cupful of macaroni broken into small pieces, 2 quarts of boiling salted water, $\frac{1}{2}$ onion, 2 cloves, $1\frac{1}{2}$ cupfuls of tomato sauce, $\frac{1}{2}$ cupful or more of grated cheese.

Cook the macaroni in the boiling salted water with the onion and cloves. Drain, remove the onion and cloves, reheat in tomato sauce, and serve with grated cheese.

SELF-RAISING FLOUR (to make)

Reduce separately by grinding, to impalpable powders: Bicarbonate of Soda, 1 pound; Cream of Tartar, $2\frac{1}{3}$ pounds; Salt, $1\frac{1}{4}$ pounds. These should be intimately mixed together, with 100 pounds of fine flour.

FILLING FOR PIES

Pumpkin—One pound stewed pumpkin, three spoons of sugar, one tablespoon molasses syrup, $\frac{1}{2}$ spoonful of ginger, cinnamon, nutmeg, pinch of salt, and $\frac{1}{2}$ cup milk or cream.

Custard—Five tablespoonfuls sugar, three eggs, $1\frac{1}{2}$ cups milk, tablespoonful cornstarch or flour, pinch nutmeg and salt.

POINTERS

If Cooking is Too Salt—If your soup or stews become too salty put in a few sliced raw potatoes. They will take up the salt.

To Preserve Bread—Scorch or charcoalize the exterior and it will keep fresh inside. The baking of the outside keeps the air from entering and preserves it. This is useful when going on a **long trip** or journey as it may be wrapped in paper that has been oiled, greased and dried, then wrapped in a **damp cloth** so as to keep a fairly moist exterior. In certain countries this charred bread is kept for years.

Bread Baked on Hot Stones—Take a flat, thick stone, have your bread dough thin and very stiff and bake over a very slow fire in a large flat cake. If the heat is right it

will take nearly half a day, but needs no attention except turning occasionally and a regular, steady, slow heat. If flour is scarce, coarse ground meal, corn, nuts, grains, rice, beans, seeds, peas, bran, etc., can be used, merely mixed into water and salt without yeast or baking powder and as the unleavened bread of olden times.

Leavened Bread is simply the fermented, or partly fermented, dough which is put aside until it becomes partly sour—in this case a little sugar is added—and a little more water to expedite the formation of gas or sourness—(see sour dough bread). Thus as Scripture says “A little leaven leaveneth a whole lump.”

As a rule good cooks are rare (camp cooks especially), hence the following instructions will have to be carefully followed:

Young Growing Lads require good substantial foods.

Fresh milk, cream, eggs and good butter should be purchased from the Scout fund—whenever available for camps. The following recipes are for both conditions, and when eggs, milk, cream or butter are not available, they can be **omitted** or proportionately used. Thrift and economy should be rigidly practiced always; expenses reduced to a minimum. **The success of a trip depending largely on the least expense—the greatest pleasure or profit accrues from the result.**

What to do with Stale Bread, Broken Pieces, Cracker Dust—Crackers, crumbs, etc., can be used for breaded chops, meat, fish, toast cut in dice size pieces to garnish or thicken soups, stews, or for puddings, milk toast, etc. They should not be thrown out, allowed to mold or waste.

Stale Loaves can be freshened (like new bread almost) if placed in a hot oven a few minutes—crackers also.

Fried Egg Bread can be made of stale sliced bread. Beat up two eggs, add cup of milk. Dip the slice therein and fry brown on both sides with a little hot fat. A fine breakfast dish with a rasher of bacon.

If **milk and eggs** are unavailable dip once only in salted water and fry as above.

A **thick batter** of flour, salt water, or eggs and bread crumbs, cracker dust, or corn meal is excellent for chops, steaks, fish, fowl, or game.

Simplest Bread Made—The simplest form of bread, and the rudest baking, are seen in the Australian "Damper," a cake made from dough composed of flour, salt, and water, baked in the dying embers of a wood fire. The dough is laid on a flat stone, covered with a tin plate, and the hot ashes heaped around and over it, care being taken not to expose it to a heat of more than 212° Fahr. Passover cakes, scones, and "bannocks" are prepared from a similar dough, and fired on hot plates or in ovens, and form an agreeable and nutritious food. When such dough is exposed to a high heat, so that the resulting cake is hard, dry, and resonant, biscuits (hard bread, twice baked) are formed, which are ideal for transportation a long distance.

Lemon Vanilla Pudding Sauce—One cup barley water, two tablespoonfuls corn starch, six spoonfuls sugar, one half nutmeg grated or one-half spoonful spice, stir until thick, boil up once and take off, flavor with spoonful lemon, vanilla or vinegar—try it.

To Color Soups, stews or gravies a rich brown, brown a little sugar real dark, dissolve this in a little water and use to color with. Carrots grated give amber color to soups or stews; tomatoes strained give it a red color; Spinach leaves pounded and the juice used, green; black beans make a brown soup or stew; white vegetables only, white soup. To thicken soups or stews use a batter of flour and water, rice, barley, etc., etc.

Rich Salad Dressing—Yolks of two hard boiled eggs rubbed fine and smooth, one teaspoonful mustard, teaspoonful salt, teaspoonful sugar, yolks of two raw eggs, beat into this drop by drop, sweet or olive oil to taste—last of all, thin with vinegar and beat to desired consistency. If you leave out the eggs it is good for cold slaw.

Plain Salad Dressing—Vinegar, salt, pepper, hot bacon fat. Excellent for camp greens. See recipe elsewhere.

Clam Chowder—Layer of clams, seasoning, crackers, clams again, crackers, salt and pepper, little butter, parsley if you have it, cup of milk or cream, and cook slowly until done.

Meat Stew and Dumplings—Take old meat cut fine, sliced onions, sliced or quartered potatoes, salt, pepper. Put some **fried bacon strips** in bottom of pot, then add onions and allow them to brown, then add meat, potatoes, a little meat gravy or water to cover pot. Stew slowly until potatoes are done. Last of all mix up a cup of flour, spoonful of **salt and pepper mixed**, 1 tablespoon baking powder with enough water to make a fairly stiff batter. Drop in pot by the spoonful, cover, boil slowly for 15 minutes and serve.

Potato Salad—Cut cold boiled potatoes in slices, an onion or two according to amount. Fry a few pieces of bacon—mix in hot fat with a little vinegar and a few spoonfuls olive oil. Stir all together, season with salt and pepper to taste and garnish with hard boiled eggs. Leave vinegar out if desired.

Camp Pot Pie—To apply when a good stew is done. Mix up a thick batter as follows: 1 quart flour, 1 tablespoon baking powder, 1 teaspoon salt and pepper mixed; drop in by the spoonful on top of stew. Cover and boil slowly for 15 minutes, then serve. A little sugar and butter sauce for the above and the Dope can be served as a pudding.

Rice Puddings—Boil one quart rice in plenty water, a little salt. When you can mash a grain between thumb and forefinger it is done. **Then strain** and if cooked right each grain will be separate, then add milk and a **teaspoon butter, eggs and nutmeg heated up together** so as to barely cover rice and bake slow until done. The secret of cooking rice is to have plenty boiling water, then strain it when done.

Baked Fish—Clean, rinse and wipe dry, rub or sprinkle salt, pepper and a little flour. Put a few spoonfuls of water in pan and a few strips of bacon or salt pork on top according to size. **Bake one hour** or until done. Serve with cream sauce. **Parsley** or **onion** flavor.

Fried Fish—Clean, dredge into flour or roll in flour. Sprinkle little salt and pepper over it, fry in hot lard or

bacon fat, if lard is used put on a teaspoon salt. Fry one side brown **then turn over.**

Fish Chowder—Cut up small pieces salt pork or bacon. Try them out in kettle. Put in layer of fish, layer of onions, layer of sliced (thin) potatoes, then first onions, potatoes again, salt and pepper to taste, last of all a few crackers, cover with water and cook slowly until potatoes are done, then add a little milk or cream to thicken and serve. Don't boil fast or use a heavy fire or **it will scorch.** All kinds of fish, oysters, clams, lobsters can be used.

Fried Oysters—Drain and dry, roll in crackers, bread, cracker crumbs, corn meal, flour (or a little of each), sprinkle a little salt and pepper in the mixture, then fry in **hot fat** but not boiling hot until brown. Don't fill the pan or you will cool the fat. Work according to your fire and heat.

Hard Gingerbread (Fine)—1 cup molasses or syrup, $\frac{1}{2}$ cup sugar, small cup of water with a teaspoonful of soda dissolved in it—**stiff dough.**

Brown Pudding Sauce—1 cup milk, 1 tablespoonful butter, 2 of sugar, 2 of flour, 2 of molasses. Stir all together and boil 10 minutes. Flavor to taste.

Corn Bread—One-half flour, one-half corn meal. Use warm water to mix in which has been dissolved 2 tablespoonfuls molasses, 1 teaspoonful baking powder, pinch of salt. Mix to a medium batter and bake in hot oven until done.

If Oven is Too Hot place pie plates under baking pan and one over it. Pie plates are excellent for this purpose. Biscuits and pies need a quick oven; cake and bread a moderate one.

Pancakes—Two cups flour, one tablespoonful baking powder with three tablespoonfuls syrup, a pinch of salt and one tablespoonful baking powder dissolved in a little warm water. Mix to a smooth stiff batter and fry on hot pan, well-greased. Drop by large spoonful to size cake desired.

Molasses Cake—One cup molasses syrup, one-half cup sugar, half cup hot water with a teaspoonful of baking

powder dissolved in it, a teaspoonful of ginger, one of cinnamon. Stir in flour to make a soft smooth batter. Bake in moderate oven 15 minutes in well-greased pan, filled about one-fourth full.

Corn Cake—One and one-half cup flour, three-fourths cup corn meal, one-fourth sugar, three spoonfuls butter, lard or bacon fat, one-fourth teaspoonful salt, four teaspoonfuls baking powder, one cup milk or water. Bake in hot oven in well-greased pan about one-fourth full.

Good Pie Crust—Use cold lard or fat, flour one cupful, lard one cupful. Chop with knife **all up together** until thoroughly mixed, then add just enough cold water to roll easy. Roll out with bottle **on a floured board** and don't use the hands at all, never knead it. Camp cooks use a rubber cloth or oil cloth instead of a board. Any fruit in season mixed with sugar makes good pie filling. Add a little spice to the fruit.

For Meat Pie Crust add more flour, less fat and a spoonful of baking powder, pinch of salt and pepper.

Candy Fudge—Two cups sugar, 1 cup syrup, 1 cup water, 1 pinch soda, 1 tablespoon butter, 1 tablespoon vinegar. Boil until it sticks to fork or solidifies in water. Pour out and allow to cool. Add cracked nuts if desired.

Simple Biscuit or Bread—1 quart flour, 1 teaspoon salt, 1 teaspoon sugar, 3 of lard, 3 of baking powder, cold water or milk to make a medium dough. Press out to about $\frac{1}{2}$ inch size, cut with baking powder lid biscuit size, place in greased pie plate or pan. Bake in quick oven 10 to 15 minutes.

Note—Biscuits require a hot (but not fierce) oven—time according to fire or heat of oven, in forming them dust a little flour on the hands over and under the biscuit dough so they will not stick. If desired they can be baked in round loaf form. Allow for swelling and bake 15 to 20 minutes or until done. To test bread run a sliver of wood in center, if it comes out clean bread is done, if dough sticks to sliver **it is not done. This rule applies to all bread, biscuits, cake, etc.** As a rule camp cooks have too much fire and beginners are prone to burn the food. In bread, biscuit or cake bak-

ing a steady regular heat and clean fire or live coals should be used.

Pancakes (1)—1 quart flour, 1 teaspoon salt, 2 of syrup, 1 of lard or bacon grease, 2 of baking powder, water or milk to make a medium batter. Fry in hot fat, turn and fry both sides. Small cakes are better than large ones. Eat with sugar and butter or syrup.

Pancakes (2)—Same as above except use molasses, 2 spoonfuls, and one-half teaspoonful of soda in a little warm water (no baking powder or lard). **Sour milk** can be used with above.

Army Biscuit or Bread—1 quart flour, 1 teaspoon salt, 2 teaspoons sugar, 2 heaping teaspoonfuls baking powder, 1 of lard or bacon fat, water to mix to a smooth dough (do not knead). Form into biscuits or loaves and bake as directed.

Army Hardtack Bread (this will keep)—1 quart flour, 1 tablespoon salt, 1 tablespoon sugar; mix to stiff dough, roll or pat out thin and bake in large sheets. A bottle makes a good rolling pin, an empty baking powder can a fine cake or biscuit cutter—hole in top for vent—(In army camps the author has often made bread and cakes for a battalion of nearly 300 men). A flour sack is all the table one needs—or a piece of canvas, oilcloth, heavy paper,—rubber blanket, (Poncho).

Yeast Bread (Ranchman's style)—Most excellent yeast bread, buns or biscuits can be made by mixing a quantity of flour, water and a few teaspoonfuls of sugar and setting aside in a warm place until it ferments or sours, then take one-half, mix with flour a little sugar and salt, teaspoon of each, and a quarter teaspoonful baking soda (not baking powder), add a teaspoonful of lard or fat. Knead into biscuits 1 inch thick, set aside a few moments to raise a little and bake in hot oven. These are excellent. Stir a little flour into remaining batter and set aside for next day and it is ready again. Ad infinitum.

Soft Gingerbread—3 cups flour, $\frac{1}{2}$ cup sugar, 1 of molasses (or $1\frac{1}{2}$ syrup), 1 cup of milk or cream, $\frac{1}{2}$ cup lard

or butter, 2 teaspoonfuls ginger, 1 of baking soda dissolved in little hot water. Bake in moderate oven **until done**.

Cookies—1 cup sugar, 1 cup lard, 1 cup molasses, $\frac{1}{2}$ cup boiling water, 2 teaspoons baking soda, 1 teaspoon each cinnamon and ginger, flour enough to make a medium dough. Roll out, stamp with baking powder cover, cut cookies and bake 10 minutes.

Layer Cake— $1\frac{1}{2}$ cups flour, $\frac{1}{2}$ cup butter, 1 cup sugar, 1 tablespoon baking powder, 2 eggs. Mix and cream butter and eggs. Add water, $\frac{1}{2}$ cup to flour. Last of all well beaten whites of two eggs. Bake in moderate oven.

Note 3—All mixed cakes should be placed in well-greased tins and filled only about **half full** so as to allow for raising. Cake requires moderate oven.

Meats to Be Boiled should be placed in boiling water so as to retain the juices—for soups or stews where extract of juice is desired, should be put in cold water. To boil meat fast toughens it—to simmer slowly tenders it.

Worry—In all camp cooking the tendency is too much fire, too quick cooking. Cook and bake slow with even, steady fire and prevent burning, which is the bane of camp cooks as a rule. Regulate your fire to a steady regular heat, **not a roaring hot fire**. Read carefully camp fires, how to make and use.

Fish Cakes—Any cold fish and potatoes heated in a little salt, pepper and a bit of parsley with a chopped onion form into Fish Balls, roll in flour, cracker dust or bread crumbs and fry in pan with a little fat and brown both sides.

Scones—Use a large **flat, smooth stone**, well heated in camp fire—then place on hot coals near to fire. Flatten out bread or biscuit dough to cover the stone—turn until each side is done. Indians bake all their bread cakes on flat, smooth stones, well heated first.

Slippery Elm Bark Tea—Break the bark into bits, pour boiling water over it and infuse or steep until cool like tea. Excellent for summer disorders or bad colds.

Toast Water—Slices of brown toast, boiling water and barely cover. Steep till cold; strain and use. **If cream or milk** is used with a little butter and salt it is creamed toast.

WILD AND VALUABLE ROOTS AND DRUGS.

Although not generally known over one-half of the known drugs are prepared exclusively from wild roots, seeds, bulbs, etc., which the scout or trapper ought to recognize and collect in season; indeed, many old trappers more than pay their entire season and outfit expenses by knowledge of plant, seed and root craft. As a rule, generally speaking, the roots of plants should be dug just before flowering. Those of the biennial or perennial kind late in autumn or spring. The object being to collect them at a period when there is a cessation of growth (in the prime so to speak), then they are the strongest. When the roots are dug they should be cleaned of dirt, washed and carefully dried. Sliced or split in many cases to facilitate drying (if the roots or bulbs are large), spread out on racks or shelves. Exposed to dry air and light, but not sunshine and never left in the damp, wet, rain or dew. They generally take about six weeks to dry properly and when rightly seasoned are brittle, snap or break easily when bent. They should be dried all the way through, and shipped in sacks, boxes or barrels. A sample being sent to the dealers and prices and terms arranged before the shipments are forwarded. Of the quantity procured, word should be stated in the correspondence. And as I give herewith the average price of them, a fair estimate of their value can be obtained. It being remembered, however, that the market prices are controlled by supply and demand, shortage increasing the value. Over stock decreasing it, as the case with fur, hides and pelts exactly.

Ginseng.

As a rule, "GINSENG" can be found growing wild, yet on account of its value has been sought for and killed out in many of the places, yet in marshes or unfrequented locations many rich finds are made, and frequently twenty (20) or thirty (30) pounds of root gathered in one small spot, where they seem to thrive, much as do dandelion in certain favorable locations. The Chinese regard it as of extraordinary quality. A universal remedy or panacea for mental or physical exhaustion and as a sexual stimulant, in decline of age. Claiming its property is such as to invigorate or renew the entire system. As it has been used for

thousands of years and by millions of people, rich and poor, its reputation is certainly founded on experience, and the fact that we do not use it is to be accounted for by ignorance of its uses and properties. Certain so-called scientific experts scoff at its value or curative properties, but to my mind the ancient method of using root is far superior to the dope using they themselves commend, which is about as useless as they ignorantly contend. Ginseng is certain, as no Chinese is going to pay dollars for what is valueless, and we have much to learn from them. I predict there will be a Ginseng craze for using the plant, as there is for finding and selling now; in brief, we will be using the medicine instead of selling it at \$4.00 to \$8.00 per pound, and you will see prices soar as we realize its value and efficiency.

It can be cultivated and the roots find as ready a market as those of the wild variety. A thousand pounds being valued from \$2,000.00 to \$5,000.00 according to grade. The seed alone being valued at \$200.00 to \$400.00 per pound. Its home is in forest ridges where sunlight and shade exist in patches. Where rich well drained soil exists that is covered with mulchy leaves, as they do not thrive in open sunlight or exposed places. I have seen wild animals dig up the roots and eat them as if they were aware of their value. Wild boars are very fond of them in the rutting or breeding season especially, seeming to indicate that they have sexual or ophrodisiac qualities attributed to them by the Ancients.

A patch of ground 15 by 20 feet will often yield a few hundred dollars worth of roots which is a small gold mine to the finder. Healthy plants indicate healthy roots, but if the stalks and leaves are wilted, straggly or half deadlike, its roots will be similarly affected. Insects and fungi parasites affecting it mostly, leaf blight, stem rot, asserting itself and affecting its entire growth, and of course depreciating the value of its roots, causing the leaflets to droop and fall. Heavy rainy seasons affecting it mostly with a sort of black or soft rot, which attacks the stalk and crown, as well as the end of the roots, itself. Plants thus affected have a straggly, shrunken appearance, galls or nut like warts upon them, or are worm or germ eaten, rust or scab appears, too, frequently, all of which affects the market value of the

root itself, hence like pelts or hides, one must grade high or low accordingly and not mix together. By many authorities healthy wild root is considered the more valuable and esteemed variety and the older the plant the better the quality. It is best collected in the fall when the top plant dies off, then it is considered prime. The Chinese macerate the roots, pound and grind them like tea leaves, make an infusion which they drink, much as we do tea. The taste is mucilaginous, slightly aromatic and bitter. The root when dried perfect, is somewhat brittle. The finest quality of roots (exceptional ones) are worth in China \$12.00 to \$100.00 an ounce. And it is claimed there is no medicine so restorative of virile or sexual power to the aged and impotent, animals even seeking it out only during the rutting season. It is kept in moist proof boxes, wrapped in silk in China, that is the finer kind, used as a medicine night and morning. The only drink permitted (except water) the dose being from 30 to 50 grains (more or less). It is claimed to be the root similar to the Mandrake of the Hebrews of the ancient times, mentioned in the Scriptures, and its use has been going on for thousands and thousands of years. In view of the fact the Chinese claim it as the plant of the Gods. The ideal restorative tonic or *Multum in Parvo* of root drugs.

HISTORY AND VALUE OF GINSENG, ONE OF THE BEST DRUGS KNOWN

American Ginseng is of a family closely related to the Wild Parsnip and Carrot family. It is a root or drug highly prized by the Chinese and Asiatics as one of the most highly valued of all roots. It can be identified by its three stalks and stems about one foot long, oval in shape, tapering at the point and toothed along the edges. When in blossom, about July, it bears a cluster of greenish white flowers, clover like somewhat, which later become berries or seeds, at first green then red and scarlet when ripe in August or September. The berries are eatable, taste of the root and the size of a small pea, each containing one to four seeds. The root stalk usually is marked by a number of scars which show the

age of the plant, being formed by stems which die off each year, many are found with forty to fifty and even more of these scars. The roots are twisted into peculiar shapes, sometimes like the human form, looks like parsnip some what, and is found in nearly all forests, appearing about May or April and disappearing about September. In June and July they are full grown. As much of the Ginseng is affected by various diseases, rot, smut, etc., which depreciates its value, care must be taken to secure good healthy roots, and large plump, smooth and clean, color light but not pure white, nor dark. The larger the better especially if they have a good medium color, and are sponge like to the touch. Bunches of small roots which grow together are not as valuable as the few big ones which come from a single root, short stubby ones have the preference over thin long ones. The fibres and hair should be removed, dried and shipped separately as they are valuable.

Also look for them on the ridges of forests where Butternut, Sugar, Maple, Rock and Slippery Elm, Birch, Whiteoak, Linden and Basswood trees abound.

In many cases freshly dug roots, which are small or poor can be freshly transplanted until they mature, often trebling in value. Care, however, must be taken not to injure them. It grows best in damp, moist, rich, but not muddy soil, and is to be found in all the eastern or southern states, such as Ohio, Indiana, Illinois, Wisconsin, Michigan, Minnesota, Iowa, Tennessee, Kentucky, Arkansas, Alabama, Georgia, North Carolina, Virginia, Maryland, or anywhere between the 37th to 47th degree of Latitude, or between the 125th to 135th degree of East Longitude, particularly about hardwood forests where rotted leaves, form as a mulch or winter cover to keep the roots from freezing, and the summer to keep the ground moist, cool and shady like, as the sun does not facilitate its growth.

Its use is a secret with the Chinese who have used it for thousands of years, and who regard it as no other drug, from high officials to the lowest coolie, as the one universal panacea whose virtues are extraordinary, particularly for exhaustion of body or mind, tonic, stimulant or curative of debility and even rheumatism, nervousness and constipation. There is no drug esteemed so valuable a remedy, its use being uni-

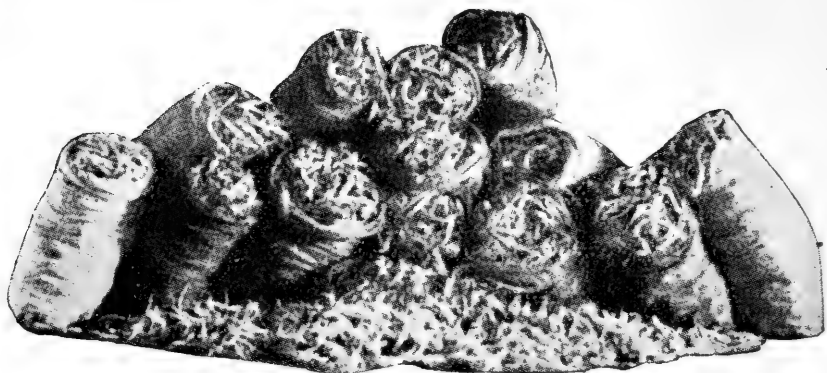


Fig I.

Fig. I. Showing fourteen ordinary grain sacks full of freshly dug matured ginseng roots; total green weight 840 pounds, after drying 252

pounds. These roots were grown from the seed, on a piece of ground 56 x 56 feet. They were dug at the end of their fifth year's growth and sold for a little over \$1,700.00.



Fig. II. A dried ginseng root, fibres removed and ready for the market. This root shows the typical transverse wrinkles by which the mature age, can be distinguished. The roots showing these transverse wrinkles, short and chunky, similar to the one here shown, and weighing from three-fourths of an ounce and over, are very desirable and bring a good price.

Roots of Ginseng Showing Ages.

Fig. III. Freshly dug roots of ginseng from cultivated plants. a. One year old; b. two years old; c. three years old; d. four years old; e. bud; f. leaf-scar (about three-fourths natural size.)

versal and its merits conceded by all to be remarkable. The roots are dried, pounded and ground like fine coffee, made like tea, sweetened or with milk or in the pure state. It has a pleasant aromatic taste, and certain it is, its medicinal proper-

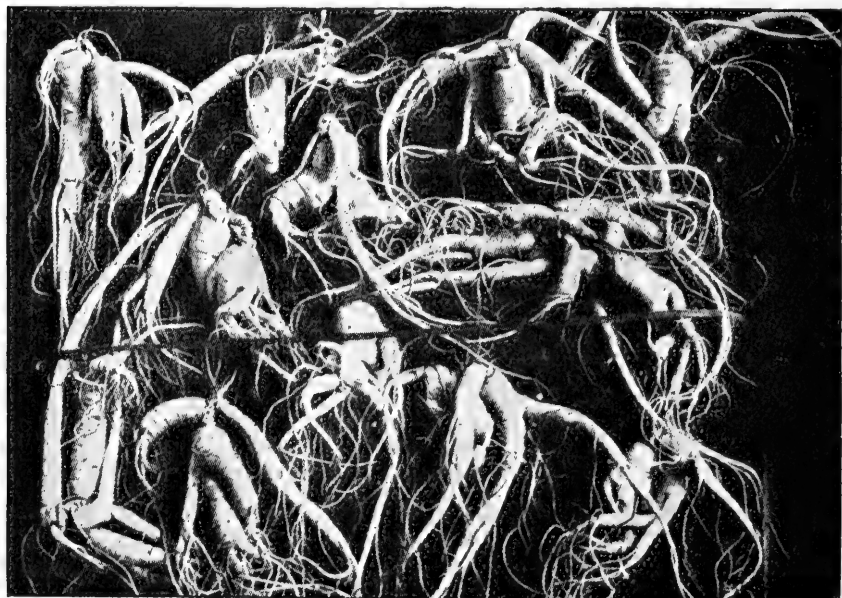


Fig. IV.

Fig. IV. Showing twelve, freshly dug, matured ginseng roots. Total green weight 3 pounds 13 ounces, after drying 1 pound and 4 ounces. These roots are wild ones which had been transplanted to a garden for four years; which accounts both for their spranglyness and also for the many small branches.

ties once America realizes it, will result in its universal adoption here. In price it averages from \$4.00 to \$8.00 per pound, the finer, better roots often exceeding this value and the market continually short. In point of fact fifty times more than we can obtain could be marketed, hence its cultivation is a paying one. The supply is fast diminishing, hence its value is increasing yearly, and there is hardly a Chinaman poor or rich, who does not use it, and it is as staple a drug as is known. It is only cultivated by roots or its own seed, and

the pure seed is difficult to obtain even at \$100.00 to \$250.00 per pound. The cultivated roots are as much in favor as the wild.

In odd times trappers and scouts can dig up and transplant rootlets, later finding a crop that pays 1,000 per cent on the investment, and many is the trapper or hunter who chases a



Fig. V.

Fig. V. Ginseng plants "coming up."

ten cent hide over a thousand dollar carpet of Wildroots which he is ignorant of and which if stored or dug up would net him more than his entire season's catch of furs.

The best soil to cultivate or replant in is that coarse, rich soil of clay, loam and sand, which is mellow, porous and well drained. It does not thrive in extremely wet or extremely dry places. Work the ground deep, twelve to fourteen inches, spade and fork it all over well and enrich it with good soil, break all lumps up fine and remove all stones and plant with seedlings or one year old long thin roots. Leave on the fibrous roots and plant so that their top roots are not bent. Leaf mould is an excellent fertilizer, as is broken sod grass, compost, well rotted manure, or bone meal fertilizer. Plant in beds and keep free from weeds, partly shading the young plants from the extreme sun rays or heat. From May to September the roots should be gathered, and from September to May they should be cultivated, if the climate allows, and as it takes eighteen months for the seed to germinate, it is best to plant rootlets when they are

dormant (from September to May, or in the spring) if done before the seed or roots begin to sprout. If raised from seed transplant seedlings from nursery beds to permanent ones after the second season, using a mulch to keep the ground moist in summer and warm in winter. As a rule roots will even stand freezing solid and thaw out again in the spring without damage. Ginseng is a very hardy plant and yet they are affected by frost or sun heat. In transplanting keep the rootlets moist and away from sun or wind and do not break or bruise them. They will not thrive either in open or dense shady spots, hence seek or plant them in the partly shaded places, as some of the better roots are of ten to fifty years growth. It is easy to see that cultivation is not a hasty method only a cheap one. It takes as a rule five to ten seasons to produce the right size and kind, both seeds and roots are valuable. The former ripens August to September, Red Berries which must be gathered when ripe. Good seed alone is worth \$50.00 to \$200.00 a pound. It must not be allowed to dry, but kept moist until it sprouts or germinates in from twelve to eighteen months after gathering, sprouting usually April to June. Seed is best planted immediately after picking (nature's way) or the seed may be removed from the berries by removing the pulp and separating them by water and light pressure. The seed sinks to the bottom of the water and the pulp and waste floats on the surface. Moist sand is good to keep the seed in, and then buried in a moist place in the ground. A quart of berries contains about 1,500 seeds and there are about 5,000 seeds to the scant pound.

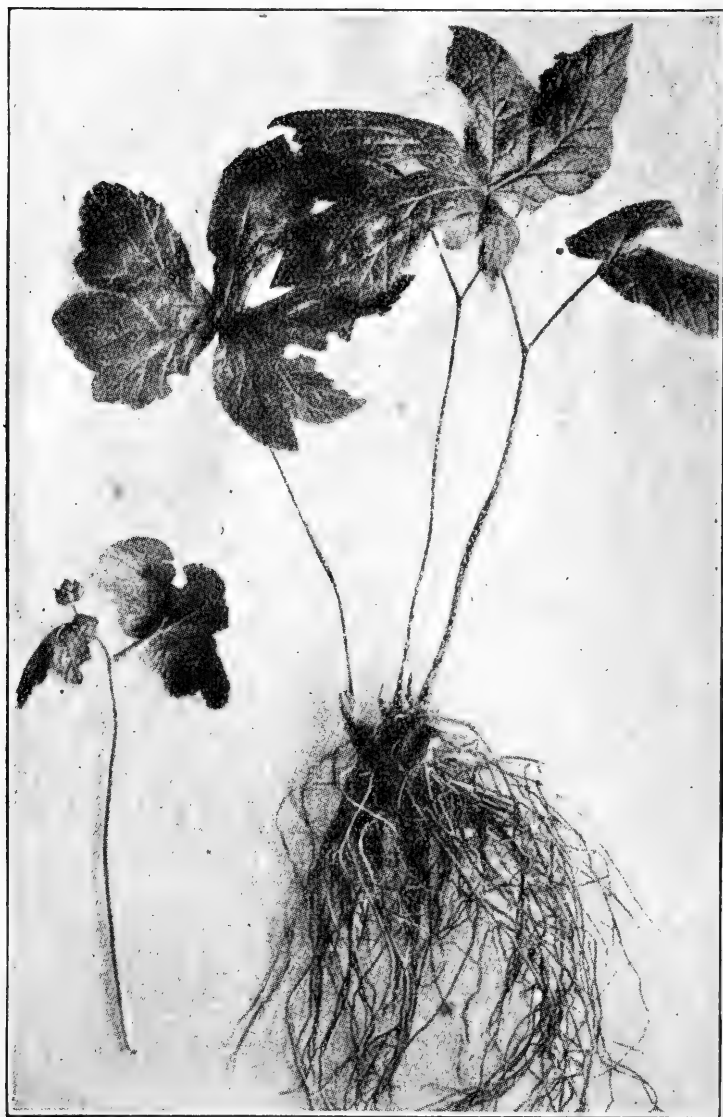
In the fall is the time to gather the roots—about September to October—when the tops begin to wither and the roots cease to grow. Dig them so as not to cut or injure the root, shake out the dirt, wash and dry them in the shade. Damaged roots decrease the value, do not break the skin, and dry in a temperature about 70 degrees by the thermometer, after they wilt more heat can be used, and the better they are dried the more valuable they are, especially if **big white chunky ones**. Then remove the fibrous rootlets to keep them separate to sell. Store in paper boxes, air tight, mice or vermin proof until marketed. Ship in boxes or sacks and use several so as to protect them somewhat, broken roots

are less valuable. It takes about three pounds of green roots to make one dry, as they lose about 75% in drying. The odd shaped roots, like a human form, are the most valuable. Those of about $\frac{3}{4}$ of an ounce bring the best price,—long thin roots the least. It is said that a half acre of ground will yield or raise \$50,000.00 worth of Ginseng in five (5) years. Root plants should not be allowed to go to seed. By removing the buds the roots grow larger. In China they never allow them to go to seed (except those desired for seed).

A splendid place to transplant and make a small patch is where others (wild ones) are found. Do not try to raise Ginseng unless you are patient and persevering and know soils and drainage, etc., as they are apt to wilt, blight or spot, or rot, or be attacked by fungus, in which case you lose. Diseased roots are recognized by their lumps and scars or scabby appearance, black soft red gall and crown rot as it is called, warty growths or excrescences.

ABOUT THE HABITAT AND RANGE OF GOLDENSEAL.

Goldenseal occurs in patches in high open woods where there is plenty of leaf mold and usually on hillsides or bluffs affording natural drainage, but it is not found in very moist or swampy situations, on prairie land, or in sterile soil. It is native from southern New York to Minnesota and western Ontario, south to Georgia and Missouri, ascending to an altitude of 2,500 feet in Virginia. It is now becoming scarce throughout its range. Not all of this region, however, produces goldenseal in abundance. Ohio, Indiana, Kentucky and West Virginia have been the greatest goldenseal-producing states, while in some localities in southern Illinois, southern Missouri, northern Arkansas and central and western Tennessee the plant, though common, can not be said to be sufficiently plentiful to furnish any large quantity of the root. In other portions of its range it is sparingly distributed.

Goldenseal.

A Fruiting Plant and a Fruiting Branch of Goldenseal.

Description of the Plant.

In addition to "goldenseal," many other common names have been applied to this plant in different localities, most of them bearing some reference to the characteristic yellow color of the root, such as yellowroot, yellow puccoon, orange-root, yellow-paint, yellow Indian-paint, Indian-paint, golden-root, Indian-dye, curcuma, wild curcuma, Ohio curcuma, wild turmeric, Indian turmeric, jaundice-root and yellow-eye; other names are eye-balm, eyeroot and ground-raspberry. Yellowroot, a popular name for it, is misleading, as it has been applied to other plants also, namely, to goldthread, false bittersweet, twinleaf and the yellowwood. The name goldenseal, however, derived from its yellow color and the seal-like scars on the root, has been generally adopted.

Goldenseal (*Hydrastis canadensis* L.) belongs to the same family as the buttercup, namely, the crowfoot family (Ranunculaceæ). It is a perennial plant, and the thick yellow rootstock sends up an erect, hairy stem about a foot in height, around the base of which are two or three yellowish scales. The stems as they emerge from the ground are bent over, the tops still remaining under ground, and sometimes the stems show some distance above the surface before the tops are brought out from the soil. The yellow color of the roots and scales extends partly up the stem so far as it is covered by soil, while the portion of the stem above ground has a purplish color. Goldenseal has only two leaves (rarely three), the stem bearing these seeming to fork at the top, one branch supporting a large leaf and the other a smaller one and a flower. Occasionally there is a third leaf, much smaller than the other two and stemless. The leaves are prominently veined on the lower surface, and are palmately 5 to 9 lobed, the lobes broad, acute, sharply and unequally toothed. The leaves are only partially developed at flowering time and are very much wrinkled, but they continue to expand until they are from 6 to 8 inches in diameter, becoming thinner in texture and smoother. The upper leaf subtends or incloses the flower bud.

Early in spring, about April or May, the flower appears, but few ever see it, as it lasts only five or six days. It is

greenish white, less than half an inch in diameter, and has no petals, but instead three small, petal-like sepals, which fall away as soon as the flower expands, leaving only the stamens—as many as 40 or 50—in the center of which are about a dozen pistils, which finally develop into a round, fleshy berry-like head. The fruit ripens in July or August, turning a bright red and resembling a large raspberry, whence the common name “ground-raspberry” is derived. Each fruit contains from 10 to 20 small, black, shining, hard seeds.

If the season has been moist, the plant sometimes persists to the beginning of winter, but if it has been a dry season it dies down soon after the fruit is ripe, so that by the end of September no trace of the plant remains above ground. In a patch of golden seal there are always many sterile stems, simple and erect, bearing a solitary leaf at the apex, but no flower.

Mr. Homer Bowers, of New Ross, Ind., who propagated goldenseal from seed for the purpose of studying its germination and growth, states that the plant grown from naturally sown seed often escapes observation during the first year of its existence owing to the fact that in this entire period nothing but two round seed leaves are produced, and at this stage the plant does not look materially different from other young seedlings. During its second year from seed one basal leaf is sent up, followed in the third year by another smaller leaf and the flower.

DESCRIPTION OF THE RHIZOME, OR ROOTSTOCK.

The rhizome (rootstock) and rootlets of goldenseal, or *hydrastis*, as it is also known in the drug trade, are the parts employed in medicine. The full-grown rhizome when fresh is of a bright yellow color, both internally and externally, about $1\frac{1}{2}$ to $2\frac{1}{2}$ inches in length and from one-fourth to three-fourths of an inch in thickness. Fibrous yellow rootlets are produced from the sides of the rhizome. The fresh rhizome contains a large amount of yellow juice and gives off a rank, nauseating odor. When dry the rhi-

zome measures from 1 to 2 inches in length and from one-eighths to one-third of an inch in diameter. It is crooked, knotty, wrinkled, of a dull brown color outside, and breaks with a clean, short, resinous fracture, showing a lemon-yellow color if the root is not old. If the dried root is kept for a long time it will be a greenish yellow or brown internally, and becomes inferior in quality. On the upper surface of the rhizome are several depressions, left by former annual stems, which resemble the imprint of a seal; hence the name goldenseal. The fibrous rootlets become very wiry and brittle in drying, breaking off readily and leaving only small protuberances, so that the root as found in commerce is sometimes almost bare. The dried rhizome also has a peculiar, somewhat narcotic, disagreeable odor, but not so pronounced as in the fresh material, an exceedingly bitter taste, and a persistent acidity which causes an abundant flow of saliva when the rhizome is chewed. The most important constituents of the rhizome are the three alkaloids—hydrastin, berberin and canadine. It contains also starch, albuminous matter, resin, sugar, fatty matter, and inorganic salts.

Hydrastis acts chiefly upon the mucous membranes and glandular system, and to some extent upon the nervous system. It is a valuable drug in disordered conditions of the digestive organs and in catarrhal affections of any of the mucous membranes when unaccompanied with acute inflammation. In the various diseases of the mucous membranes it is administered both internally and locally. Hydrastis imparts its properties to water, glycerin, or alcohol.

Collection and Preparation of the Root.

The root should be collected in autumn after the plants have matured seed. Spring-dug root shrinks far more in drying and always commands a lower price than the fall-dug root. After the roots are removed from the earth they should be carefully freed from soil and all foreign particles. They should then be sorted, and small, undeveloped roots and broken pieces may be laid aside for replanting. After the roots have been cleaned and sorted they are ready to be dried or cured. Great care and judgment are necessary in drying the roots. It is absolutely necessary that they should

be perfectly dry before packing and storing, as the presence of moisture induces the development of molds and mildews, and of course renders them worthless. The roots are dried by exposure to the air, being spread out in thin layers on drying frames or upon a large, clean, dry floor. They should be turned several times during the day, repeating this day after day until the roots are thoroughly dried. If dried out of doors they should be placed under cover upon indication of rain and at night so that they may not be injured by dew. After the roots are thoroughly dried they may be packed as tightly as possible in dry sacks or barrels, and they are then ready for shipment.

VALUE OF PRESSED WILD DRY BARKS, FLOWERS, HERBS, LEAVES AND ROOTS.

Trappers as a rule acquire much that could be turned to good account and add to their income considerably did they but study and collect the valuable weed roots, herbs, leaves and barks which can be found in the various woods and forests in their respective locations. Men versed in such woodcraft and knowledge of the values very frequently pay the entire expenses of a season by judicious gathering of such and I append herewith a list and give the prices of many which can be found growing wild, and add to it the average prices paid which rise and fall according to the market, just as do furs, hides and pelts.

(Prices quoted are for Herbs and Flowers in ounces; Roots and Barks in pounds.)

Abscess root	\$0 40	Althea flowers	55
Aconite leaves	25	Angelica leaves	25
Aconite root	30	Angelica root	20
Adder's Tongue leaves. .	40	Angostura bark	50
Agrimony herb	30	Apple Tree bark	25
Alder bark, black	22	Arbor Vitae leaves	28
Alder bark, red or tag..	20	Arnica flowers	30
Alkanet root	18	Arnica root	30

Ash bark, black.....	20	Blue Flag root.....	25
Ash bark, mountain....	24	Boneset herb	20
Ash bark, prickly.....	24	Boneset leaves	22
Ash bark, white.....	20	Borage leaves	38
Asparagus root	30	Boxwood bark	18
Avens root, true.....	35	Boxwood flowers	30
Balm, Lemon, herb....	40	Broom Top, Scotch.....	25
Balm, Sweet, herb....	35	Bryony root	30
Balmony leaves	25	Buchu leaves	45
Barberry bark	30	Buckbean leaves	37
Basswood bark	20	Buckbean root	35
Bay leaves	20	Buckhorn Brake root....	28
Bayberry bark	18	Buckthorn bark, <i>Rham.</i>	
Bayberry leaves	35	<i>Frang.</i>	20
Bearsfoot root	30	Bugle, Bitter, herb.....	30
Beech bark	28	Bugle, Sweet, herb.....	30
Beech Drops, <i>Cancer root</i>	25	Burdock leaves	30
Beech leaves	28	Burdock root	18
Belladonna leaves	32	Butternut bark	16
Belladonna root	30	Butternut leaves	28
Bellwort herb	40	Calendula flowers, for-	
Bellwort root	45	eign	90
Benne leaves	60	Canada Thistle root....	40
Berberis Aquifolium root	25	Canella bark	40
Beth root	30	Cannabis Indica	90
Birch bark	24	Cardinal, Blue, herb....	34
Bistort root	34	Carpenter Square herb...	30
Bitter root	28	Carpenter Square root...	30
Bittersweet bark, <i>Celas-</i>		Cascarilla bark	25
<i>trus, false</i>	30	Cascara Sagrada bark....	20
Bittersweet leaves, <i>Dul-</i>		Catnip herb	20
<i>camara</i>	45	Catnip leaves	24
Bittersweet twigs, <i>Dulca-</i>		Celandine, garden, herb..	34
<i>mara</i>	lbs. 25	Celandine, wild, herb....	35
Black Haw, bark of root.	30	Centaury, American, herb	24
Blackberry root	18	Centaury, European, herb	40
Blackberry root bark....	20	Chamomile flowers, Ger-	
Bladder Wrack, 1's.....	30	man	40
Blazing Star root.....	35	Chamomile flowers, Ro-	
Blessed Thistle leaves...	32	man	35
Blood root	20	Cherry bark, wild.....	20

Chestnut bark	20	Dandelion herb	30
Chestnut leaves	24	Dittany herb	28
Chickweed herb	34	Dog-grass	21
Chickweed, Red	40	Dwarf Elder root.....	40
Chiretta, 1's	34	Elder bark	30
Cicely, Sweet, root.....	45	Elder flowers	26
Cicuta leaves	30	Elecampane root	18
Cinchona, pale	35	Eucalyptus Globulus	
Cinchona, red	35	leaves	25
Cinchona, Calisaya	35	Evening Primrose herb..	32
Cinquefoil herb	34	Eyebright herb	40
Cinquefoil root	35	Fern, Male, root.....	30
Clarry herb	55	Fern, Sweet, leaves.....	30
Cleaver's herb	35	Feverbush leaves	30
Clover heads, red.....	24	Feverfew herb	45
Clover heads, white.....		Fever root	35
Clover, sweet	30	Fireweed herb	25
Coca leaves	50	Fit Plant herb, 1/2's and	
Cohosh root, black.....	15	1/4's	34
Cohosh root, blue.....	18	Five Finger herb	34
Cohosh root, red.....	35	Five Finger root	34
Cohosh root, white.....	30	Fleabane, Canada, herb..	34
Colchicum root	30	Foxglove leaves	36
Columbo root, American..	28	Fringe Tree, bark of root	30
Columbo root, foreign...	18	Frostwort herb	30
Coltsfoot leaves	26	Galangal root	20
Coltsfoot root	34	Gentian root, American..	35
Columbine herb	40	Gentian root, foreign...	16
Comfrey root	25	Gold Thread herb.....	
Condurango bark	40	Golden Rod herb.....	30
Conium leaves	30	Golden Seal root.....	90
Consumption Brake, herb	65	Gravel Plant herb.....	20
Coolwort herb	30	Grindelia Robusta	25
Cotton root bark.....	24	Grindelia Squarrosa ...	40
Cramp bark	24	Gromwell herb	65
Craneshill root	26	Ground Pine leaves.....	34
Crawley root		Guaiac Wood, 1's.....	17
Culver's root	24	Hair Cap Moss.....	28
Daisy flowers	30	Hardhack leaves	30
Damiana leaves	35	Heartsease herb	40
Dandelion root, true.....	25	Hellebore root, American	24

Hellebore, black	20	Linden flowers with	
Hellebore, white	25	leaves	40
Hemlock bark	15	Liverwort leaves.....	30
Hemlock leaves, <i>Abies</i>		Lobelia herb.....	28
<i>Can</i>	30	Lobelia leaves	40
Henbane leaves	34	Lovage leaves.....	45
Hoarhound herb	22	Lovage root	28
Hoarhound leaves.....	28	Lung Moss	30
Hollyhock flowers	30	Lungwort leaves.....	34
Hops, 1901 crop, ounces.	35	Magnolia bark	35
Horsemint herb	30	Maiden Hair herb....	25
Horse Radish root.....	26	Mallow, Low, herb....	34
Horse Radish leaves.....	30	Mandrake root	15
Hound's Tongue leaf....	30	Man in the Ground	
Hydrangea root	20	root	30
Hyssop herb	30	Marigold flowers (do-	
Indian Hemp, black, root	40	mestic)	70
Indian Hemp, white, root	30	Marjoram, German....	36
Indian Physic root.....	25	Marshmallow leaves...	30
Indian Turnip root.....	30	Marshmallow root.....	34
Indigo, wild, root.....	20	Marsh Rosemary root.	40
Ivy, American, bark of		Masterwort leaves.....	30
root	25	Masterwort root.....	40
Ivy, ground, herb.....	25	Matico leaves.....	40
Jaborandi leaves, ½'s and		May Weed herb.....	35
¼'s	34	Meadow Fern leaves..	34
Jacob's Ladder herb....	30	Mellilot (see Clover,	
Jamaica Dogwood bark..	30	Sweet)	30
Jersey Tea, bark of root.	30	Mezereon bark.....	30
Johnswort herb	30	Milkweed root.....	30
Kidneywort	34	Mistletoe, I's.....	30
Labrador Tea herb.....	50	Moosewood bark.....	30
Lady Slipper root.....	45	Motherwort herb.....	30
Larkspur herb		Mountain Mint herb..	45
Laurel leaves	28	Mugwort leaves.....	34
Lavender Flors	28	Mullein leaves.....	20
Lettuce, wild and garden	30	Nervine (see Lady	
Life Everlasting (Swt.		Slipper)	45
Bals.) herb	25	Nettle Flors	1 75
Life Root herb.....	30	Nettle leaves	30
Linden flowers	50	Nettle root	24

Oak bark, black.....	20	Quaking Asp	25
Oak bark, red.....	20	Quebracho bark	35
Oak bark, white.....	20	Queen of Meadow	
Oak, Jerusalem, leaf...	33	herb	20
Osier bark, green.....	30	Queen of Meadow	
Osier bark, red.....	30	root	20
Pæony root	46	Ragweed herb ..	30
Pansy herb	42	Raspberry leaves.....	25
Pareira Brava, root....	34	Rhatany root	32
Parilla, Yellow, root..	30	Rosemary flowers.....	40
Parsley leaves	40	Rosemary leaves.....	25
Parsley root	40	Rose Petals, damask.. 1.	50
Peach bark	30	Rose Petals, pale.....	45
Peach leaves	30	Wahoo, bark of root..	38
Pellitory root	40	Rose Willow bark.....	30
Pennyroyal leaf	20	Rosinweed root.....	25
Peppermint herb	24	Rue, herb	34
Persimmon bark	30	Saffron, American.....	35
Pimpinella root	45	Sage, domestic, ozs...	35
Pine bark, white.....	20	Sage, domestic, ½'s and	
Pink root	40	¼'s	30
Pitcher Plant root.....	35	Sage, Ital., leaf, ozs...	18
Pitcher Plant leaves...	30	Sage, Ital., ½'s and ¼'s	
Plantain leaves	30	Sage, Mountain	30
Pleurisy root	30	Sanicle root, black....	70
Poison Oak leaves....	40	Sanicle root, white....	32
Poke root	15	Sarsaparilla root, Amer-	
Polypody root ..	34	ican	25
Pomegranate, bark of		Sarsaparilla root, Hon-	
root	35	duras	55
Pond Lily root, white..	32	Sarsaparilla root, Mexi-	
Pond Lily root, yellow..	30	can	28
Poplar bark, white....	15	Sassafras bark	20
Poplar bark, yellow...	18	Savine leaves	28
Poppy flowers, red....	65	Scouring Rush	30
Poppy leaves	34	Scullcap leaves	45
Prairie Pine Weed		Seneka root	90
root	40	Senna, Amer., leaves..	50
Princes' Pine, leaf....	30	Senna, Alexandria	34
Privet leaves	45	Senna, Tinnevilla.....	28
Pulsatilla herb ..	40	Sheep Laurel	35

Sheep Sorrel, herb....	35	Twin Leaf root.....	18
Silkweed root	30	Unicorn root, <i>Aletris</i> ...	40
Simaruba bark	34	Unicorn root, false <i>Helo-</i>	
Skunk Cabbage root...	28	<i>nias</i>	48
Smartweed herb	24	Uva Ursi	22
Snake root, Button....	34	Valerian root, German.	26
Snake root, Canada....	40	Valerian root, Vermont	25
Snake root, Sampson..	30	Valerian root, English.	35
Snake root, Virginia...	70	Vervain herb	24
Soap Tree bark.....	16	Vervain root	34
Soapwort herb	35	Violet flowers	80
Soapwort root	34	Wafer Ash, bark of root	30
Solomon's Seal root...	30	Wahoo, bark of tree...	26
Southernwood herb....	45	Wall Pellitory herb....	60
Spearmint herb.....	30	Walnut bark	18
Speedwell herb.....	30	Walnut leaves.....	30
Spikenard root.....	24	Watercup plant	35
Squaw Vine leaves....	25	Water Pepper herb....	24
Stillingia root	25	Wickup herb	35
Stone root	22	Wild Carrot herb.....	35
Stramonium leaves....	24	Wild Yam root.....	20
Strawberry leaves.....	30	Willow bark, black....	18
Sumach bark	20	Willow bark, white....	25
Sumach leaves	30	Wintergreen leaves....	24
Summer Savory, leaf..	30	Winter's bark	75
Sweet Basil herb.....	60	Witch Hazel bark.....	22
Sweet Flag root.....	20	Witch Hazel leaves....	24
Sweet Gum bark.....	35	Wood Betony, leaf....	40
Tamarac bark	24	Wood Sanicle, herb....	50
Tansy herb	25	Wormwood herb	30
Thimbleweed herb	40	Yarrow herb	28
Thyme, leaf	26	Yarrow flowers	35
Tormentilla root	32	Yellow Dock root.....	18
Trailing Arbutus (see		Yellow Jessamine root.	18
Gravel Plant).....	20	Yerba Santa	26
Turkey Pea root.....	28	Zedoary root	26

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